Air Quality Conformity Analysis

Interstate-405 Improvement Project

12-ORA-405 PM 9.3/24.2 / 07-LA-405 PM 0.0/1.2

12-ORA-22 PM R0.7/R3.8 / 12-ORA-22 PM R0.5/R0.7

12-ORA-73 PM R27.2/R27.8 / 12-ORA-605 PM 3.5/R1.6

07-LA-605 PM R0.0/R1.2

EA: 0H1000

EFIS ID: 12-0000-0180

RTP ID: ORA030605

January 2015

pared By: _____ Date: January 27, 2015

Sam Silverman
Senior Associate
Terry A. Hayes Associates Inc.

proved By: _____ Date: 1/28/2015

Reza Aurasteh, Ph.D., PE
Branch Chief- Environmental Engineering
California Department of Transportation, District 12

Caltrans

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12-ORA-73 PM R27.2/R27.8 / 12-ORA-605 PM 3.5/R1.6

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Table of Contents

List of Tables

List of Figures

Section 1. Introduction and Project Description

This Air Quality Conformity analysis contains the information that is required to make a project-level air quality conformity determination for the Interstate (I)-405 Improvement Project. This analysis has been prepared to be consistent with information published by FHWA related to Project-Level Conformity Analysis, the Standard Environmental Reference (SER) Air Quality Conformity Findings Checklist (included as Appendix G), applicable U.S. EPA project-level analysis guidance, the Transportation Conformity Regulations at 40 CFR 93 Subpart A, and Section 176(c) of the Federal Clean Air Act (42 USC 7506(c)).

This analysis only addresses the conformity requirements of the Federal Clean Air Act. It does not address general air quality analysis or studies conducted for the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA), and only address pollutants for which the project area is designated nonattainment, or attainment with an approved Maintenance SIP, by the U.S. EPA.

This report is intended to provide all information needed by FHWA to make a project-level conformity determination for a project that falls under 23 USC 327 NEPA Assignment to Caltrans; or to support a full project-level conformity determination by Caltrans under 23 CFR 326 NEPA Assignment for projects that require a project-level conformity determination (including regionally significant projects as defined in 40 CFR 93.101), and are categorically excluded from NEPA analysis under 23 CFR 771.117(c)(22) or 23 CFR 771.117(c)(23).

1.1. Project Description

The I-405 Improvement project proposes to improve the mainline freeway and interchanges on I-405 in Orange and Los Angeles Counties. The proposed project would relieve congestion and improve operational efficiency on I-405 between State Route (SR)-73 and I-605. The approximately 16-mile-long project corridor is primarily located in Orange County on I-405 and traverses the Cities of Costa Mesa, Fountain Valley, Huntington Beach, Westminster, Garden Grove, Seal Beach, Los Alamitos, Long Beach, and the community of Rossmoor (see Figure 1).

The project purpose is a set of objectives the project is intended to meet. The project need is the transportation deficiency that the project was initiated to address. The purpose of the proposed action is to:

- Reduce congestion;
- Enhance operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations; and
- Minimize environmental impacts and right-of-way acquisition.

Figure 1. Project Location Map

In furtherance of the project's purpose, the following objective is established:

- To be consistent with regional plans and find a cost-effective early project solution for delivery.

The need for the proposed project and current deficiencies of I-405 within the project limits are summarized below:

- The I-405 mainline General Purpose (GP) lanes peak-period traffic demand exceeds available capacity;
- The I-405 mainline High Occupancy Vehicle (HOV) lanes peak-period traffic demand exceeds available capacity;
- The I-405 mainline GP traffic lanes have operational and geometric deficiencies;
- The interchanges along I-405 within the study area have geometric, storage, and operational capacity deficiencies; and
- I-405 currently has limitations in detecting traffic incidents and providing rapid response and clearance due to lack of capacity and technological infrastructure.

The project limits extend from 0.2-miles south of Bristol Street (12-ORA-405 Post Mile [PM] 9.3) to the Orange County/Los Angeles County line (12-ORA-405 PM 24.2) and in Los Angeles County from the County line (07-LA-405 PM 0.00) to 1.4 miles north of I-605 (07-LA-405 PM 1.2). Improvements are proposed on SR-22 West in Orange County from 0.2-miles west of I-605 (12-ORA-22 PM R0.5) to I-405 (12-ORA-22 PM R0.7) and on SR-22 East in Orange County from I-405 (12-ORA-22 PM R0.7) to 0.2-miles east of the Beach Boulevard Undercrossing (12-ORA-22 PM R3.8). Improvements on SR-73 will be from the Bear Street Overcrossing (12-ORA-73 PM R27.2) to I-405 (12-ORA-73 PM R27.8). Improvements on I-605 in Orange County will be from I-405 (12-ORA-605 PM 3.5) to the County line (12-ORA-605 PM R1.6) and in Los Angeles County from the County line (07-LA-605 PM R0.0) to 0.9-mile north of the Spring Street Overcrossing (07-LA-605 PM R1.2). Encroachments into Los Angeles County and work on SR-22 are associated with signing and striping to accommodate the transition from the existing to the proposed facility. I-405 is currently a controlled-access highway facility with 8 to 12 mixed-flow GP lanes and two HOV lanes, which is over capacity and subject to traffic congestion and travel delays.

I-405 is generally a north-south route with 24 miles in Orange County and 48 miles in Los Angeles County. I-405 is part of the National Highway System and is considered a bypass route to I-5 (the Santa Ana/Golden State Freeway) providing intra-regional and inter-regional access between Orange and Los Angeles Counties. I-405 also serves as a critical goods movement corridor connecting the San Diego and United States/Mexico border region with the ports of Long Beach and Los Angeles.

Within the project limits, I-405 connects with SR-73 at the southern end and with I-605 at the northern end, and for approximately 2 miles between Bolsa Chica Road and I-605, it overlaps with SR-22. Fifteen (15) local street interchanges and three freeway-to-freeway interchanges are within the limits of the project improvements.

Alternative 3 is the preferred alternative with an open to traffic year of 2020. Alternative 3 would add one GP lane in each direction on I-405 from Euclid Street to the I-605 interchange, plus add

a tolled Express Lane in each direction of I-405 from SR-73 to SR-22 East. The tolled Express Lane and the existing HOV lanes would be managed jointly as a tolled Express Facility with two lanes in each direction from SR-73 to I-605. The proposed project would provide a full standard highway cross section, with 12-foot-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders would be 10-feet-wide, while left side (inside) shoulders would have a maximum width of 10 feet with a provision for a widened left shoulder for enforcement areas under consideration. The tolled Express Facility would be separated from the GP lanes by a 1- to 4-foot buffer.

It is anticipated that the total construction period along the length of the alignment would be 54 months (4.5 years). Using information from the Road Construction Emissions Model, the anticipated construction phases and duration are as follows:

- Grubbing/Land Clearing - 5.4 month
- Grading/Excavation - 24.3 months
- Drainage/Utilities/Sub-Grade - 16.2 months
- Paving - 8.1 months

1.2. Air Quality Regulatory Framework

Table 1 shows that the proposed project is located in an area that is nonattainment for ozone (O_3) and particulate matter 2.5 micron or less in diameter (PM2.5) and attainment-maintenance for nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter 10 micron or less in diameter (PM10). This analysis focuses on these criteria pollutant(s). The conformity process does not address pollutants for which the area is attainment/unclassified, mobile source air toxics, other toxic air contaminants or hazardous air pollutants, or greenhouse gases. A map of the nonattainment and maintenance boundaries is shown in Figure 2.

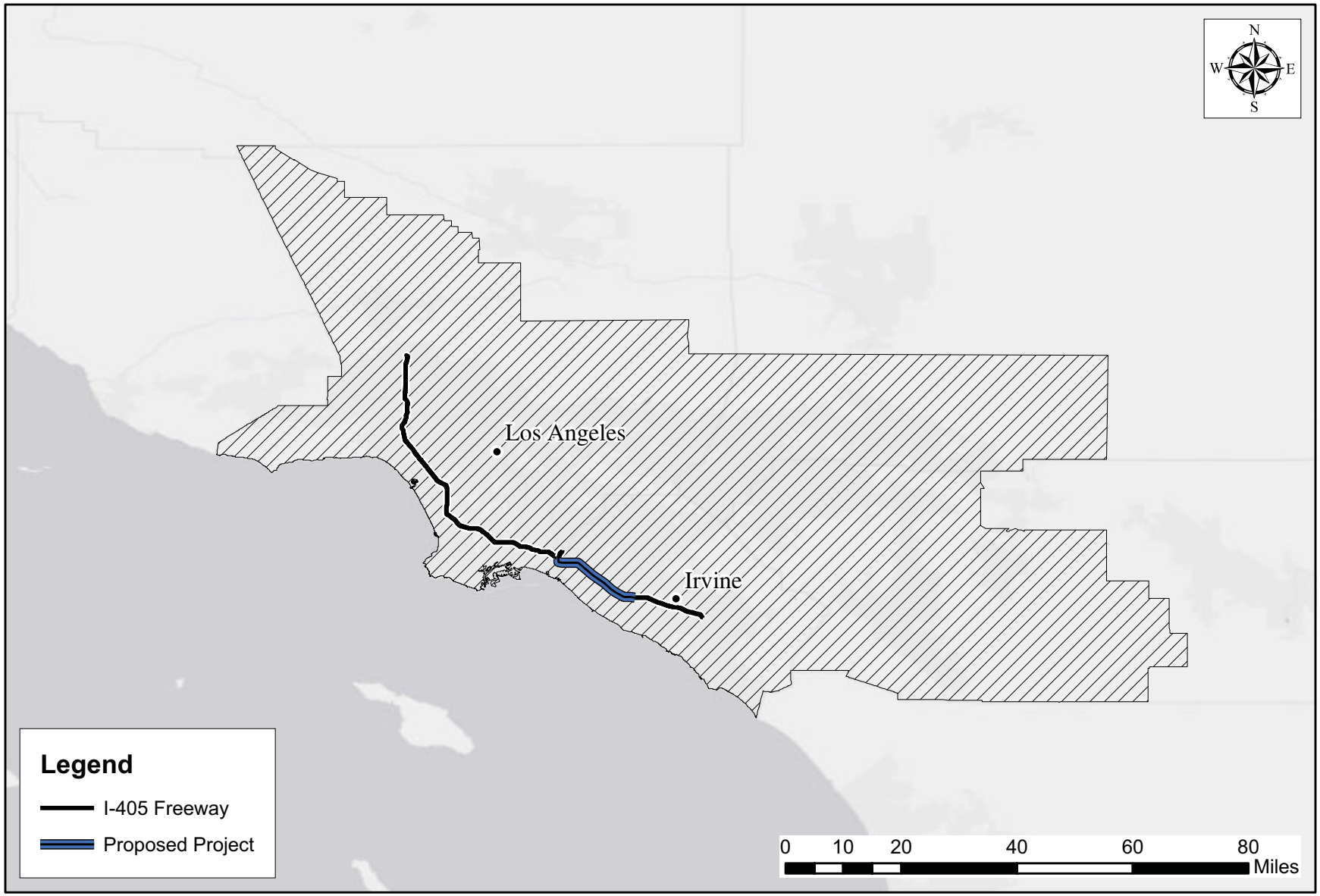
Table 1. Project Area Attainment Status

Criteria Pollutant	Federal Attainment Status
Ozone	Nonattainment (Extreme)
Nitrogen Dioxide	Maintenance
Carbon Monoxide	Maintenance
Particulate Matter (PM10)	Maintenance
Particulate Matter (PM2.5)	Nonattainment (Moderate)

Source: U.S. Environmental Protection Agency, The Green Book Nonattainment Areas for Criteria Pollutants, accessed October 2, 2014 (http://www.epa.gov/airquality/greenbook/anay_ca.html, http://www.epa.gov/airquality/greenbook/ancl.html#CALIFORNIA).

1.3. Public Review Comments Related to Air Quality Conformity

Public comment regarding the conformity analysis was requested as part of the draft NEPA document circulation on May 18, 2012. The South Coast Air Quality Management District (SCAQMD) submitted a comment letter on the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) dated May 7, 2012 that, in part, addressed concerns over the project being discussed as a Transportation Control Measure. Refer to Appendix A for details regarding the SCAQMD comments and responses.



SOURCE: U.S. EPA; State of California, Department of Transportation; TAHA, 2014.

taha
environmental planners

Interstate 405 Corridor Project
Qualitative Hotspot Analysis
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION

FIGURE 2

NON-ATTAINMENT/MAINTENANCE BOUNDARY MAP

Section 2. Regional Conformity

The I-405 Improvement Project was included in the regional emissions analysis conducted by the Southern California Association of Governments (SCAG) for the conforming 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The project's design concept and scope have not changed significantly from what was analyzed in the regional emissions analysis. This analysis found that the plan, which takes into account regionally significant projects and financial constraint, will conform to the state implementation plan(s) (SIP(s)) for attaining and/or maintaining the National Ambient Air Quality Standards (NAAQS) as provided in Section 176(c) of the Clean Air Act. FHWA determined that the RTP conforms to the SIP on June 4, 2012. Additional documentation related to the regional emissions analysis is contained in Appendix B.

The I-405 Improvement Project is also included in the federal Transportation Improvement Program (TIP). The project's open-to-traffic year is consistent with (within the same regional emission analysis period as) the construction completion date identified in the federal TIP and/or RTP. The federal TIP gives priority to eligible Transportation Control Measures (TCMs) identified in the SIP and provides sufficient funds to provide for their implementation. FHWA determined that the TIP conforms to the SIP on January 26, 2015. Documentation related to the public and interagency consultation process conducted to develop the federal TIP is contained in Appendix B.

Section 3. Localized Impact (Hot-Spot) Conformity

Localized analyses have been prepared for open-to-traffic year (2020) and 20-year horizon (2040). It is acknowledged that the 2012-2035 RTP/SCS horizon year is 2035. Project-specific traffic data is not available for 2035, although EMFAC2011 2035 emission rates were used with 2040 traffic data.

3.1. Carbon Monoxide Hot-Spot Analysis

The California Project-Level Carbon Monoxide Protocol (CO Protocol) was used to analyze CO impacts for the I-405 Improvement Project. The hot-spot analysis covered the most congested intersections affected by the project in open-to-traffic year 2020 and horizon year 2040.

The ambient air quality effects of traffic emissions were evaluated using the modeling procedures described in Appendix B of the CO Protocol and Appendix C of this document. The assumptions used in the hot-spot analysis are consistent with those used in the regional emissions analysis. The modeling results shown in Appendix C indicate that project-related CO emissions would not cause or contribute to any new or worsened localized violations of the federal 1- or 8-hour CO ambient standards.

The NEPA document for this project does not identify specific avoidance, minimization, and/or mitigation measures for CO. A written commitment to implement such control measures is therefore not required.

The approved RTP/SCS and federal TIP for the project area have no CO mitigation or control measures that relate to the project's construction or operation. Therefore, a written commitment to implement CO control measures is not required.

3.2. PM2.5/PM10 Hot-Spot Analysis

Particulate matter (PM) hot-spot analysis is required under the U.S. EPA Transportation Conformity Guidance for a Project of Air Quality Concern (POAQC), as described in U.S. EPA's Final Rule of March 10, 2006. U.S. EPA issued guidance in 2006 regarding the basic hot-spot analysis process with emission analysis as the detailed analysis step. U.S. EPA released guidance in 2010 that describes a more detailed analysis process using dispersion modeling that replaces the emission analysis step in the 2006 guidance. All projects with PM10 and/or PM2.5 hot-spot analysis started since December 10, 2012 must use the quantitative analysis procedures in the 2010 guidance. Projects with PM analysis started before December 2012 using the 2006 qualitative analysis procedures must complete both the project-level conformity determination and the Final NEPA document within 3 years of circulating the draft NEPA document.

The initial Interagency Consultation (IAC) for the proposed project was completed on January 25, 2011 and the NEPA document was circulated on May 18, 2012. The qualitative analysis is appropriate if the NEPA documentation is completed by May 18, 2015.

According to the U.S. EPA Transportation Conformity Guidance (Final Rule), March 10, 2006, the following types of projects are considered POAQC:

1) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles (significant number is defined as greater than 125,000 Annual Average Daily Traffic (AADT) **and** 8% or more of such AADT is diesel truck traffic, or in practice 10,000 truck AADT or more regardless of total AADT; significant increase is defined in practice as a 10% increase in heavy duty truck traffic);

2) Projects affecting intersections that are at a Level of Service D, E, F, with a significant number of diesel vehicles, or that that will change to Level of Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

3) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

4) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; or

5) Projects in or affecting locations, areas, or categories of sites which are identified in the PM2.5 or PM10 implementation plan or implementation plan submission, as appropriate, as sites of possible violation.

The I-405 Improvement Project is considered a POAQC for PM10 and/or PM2.5 because it meets the definition of a POAQC as defined in U.S. EPA's Transportation Conformity Guidance. It falls within the category of new or expanded highway projects with a significant number of diesel vehicles, and it would be affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles.

The project has undergone Interagency Consultation (IAC) regarding POAQC determination. IAC participants concurred that the project is a POAQC (see Appendix D).

A qualitative PM analysis has been conducted for the project, as described in Appendix E. The project is expected to reduce the severity and number of localized PM2.5 and/or PM10 violations in the project area. Transportation Conformity Working concurred with this determination on October 28, 2014.

The approved PM2.5 and PM10 SIPs have no control measures applicable to the I-405 Improvement Project. Therefore, a written commitment to implement control measures is not required.

The NEPA document for this project identifies the following mitigation, minimization, or avoidance measures related to the generation of PM10 and/or PM2.5 during construction activities:

- The construction contractor must comply with the Department's Standard Specifications in Section 14-9(2010).
    - Section 14-9.02 specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.
    - Section 14-9.03 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are described in Section 18.
- Water or dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a "no visible dust" criterion either at the point of emissions or at the right-of-way line, depending on local regulations.
- Soil binder will be spread on any unpaved roads used for construction purposes, and on all project construction parking areas.
- Trucks will be washed as they leave the right-of-way as necessary to control fugitive dust emissions.
- Construction equipment and vehicles will be properly tuned and maintained. All construction equipment will use low sulfur fuel as required by California Code of Regulations Title 17, Section 93114.
- A dust control plan will be developed documenting sprinkling, temporary paving, speed limits, and timely revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Equipment and materials storage sites will be located as far away from residential and park uses as practicable. Construction areas will be kept clean and orderly.
- ESA (Environmentally Sensitive Area)-like areas or their equivalent will be established near sensitive air receptors. Within these areas construction activities involving the extended idling of diesel equipment or vehicles will be prohibited, to the extent feasible.

- Track-out reduction measures, such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic, will be used.
- All transported loads of soils and wet materials will be covered before transport, or adequate freeboard (space from the top of the material to the top of the truck) will be provided to minimize emission of dust (particulate matter) during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic will be promptly and regularly removed to decrease particulate matter.
- To the extent feasible, construction traffic will be scheduled and routed to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Mulch will be installed or vegetation planted as soon as practical after grading to reduce windblown particulate in the area. Be aware that certain methods of mulch placement, such as straw blowing, may themselves cause dust and visible emission issues, and may need to use controls such as dampened straw.

The approved RTP and TIP for the project area have no PM mitigation or control measures that relate to the project's construction or operation. Therefore, a written commitment to implement PM control measures is not required.

3.3. Construction-Related Hot-Spot Emissions

40 CFR 93.123(c)(5) states that: "CO, PM10, and PM2.5 hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions. Each site which is affected by construction-related activities shall be considered separately, using established 'Guideline' methods. Temporary increases are defined as those which occur only during the construction phase and last five years or less at any individual site."

Because construction of the project is expected to last less than five years, construction-related emissions related to it are not considered in the project-level or regional conformity analysis.

Appendix A. Public Review Comments and Responses Related to Air Quality Conformity

The SCAQMD submitted a comment letter on the Draft EIR/EIS dated July17, 2012 that, in part, addressed concerns over the conformity analysis. The letter is included in Appendix R1 of the Final EIR/EIS and identified as Letter GR4. The relevant comment, identified as Comment GR4-18, stated:

> Alternatives Two (2) and Three (3) of the proposed project are not currently programmed in the Regional Transportation Plan and if selected would require a revised conformity analysis. Therefore, the AQMD staff requests that in the event that Alternative 2 or Alternative 3 are selected the lead agency clarify whether the project will demonstrate conformity consistent with EPA's updated Quantitative Hot-Spot Analyses Guidance Document [Federal Register FRL-9241-3]. The lead agency should disclose to the public any new information relative to the projects conformity analysis.

Response:

Particulate matter (PM) hot-spot analysis is required under the U.S. EPA Transportation Conformity Guidance for a Project of Air Quality Concern (POAQC), as described in U.S. EPA's Final Rule of March 10, 2006. U.S. EPA issued guidance in 2006 regarding the basic hot-spot analysis process with emission analysis as the detailed analysis step. U.S. EPA released guidance in 2010 that describes a more detailed analysis process using dispersion modeling that replaces the emission analysis step in the 2006 guidance. All projects with PM10 and/or PM2.5 hot-spot analysis started since December 10, 2012 must use the quantitative analysis procedures in the 2010 guidance. Projects with PM analysis started before December 2012 using the 2006 qualitative analysis procedures must complete both the project-level conformity determination and the Final NEPA document within three 3 years of circulating the draft NEPA document.

This project was determined to be a Project of Concern (POAQC) for localized particulate matter (PM10 and PM2.5), based on interagency consultation concluded on January 25, 2011. Project-level particulate matter (PM) analysis was started on January 26, 2011. Analysis follows the U.S. EPA Guidance of 2006. The initial Interagency Consultation (IAC) for the proposed project was completed on January 25, 2011 and the NEPA document was circulated on May 18, 2012. The qualitative analysis is appropriate if the NEPA documentation is completed by May 18, 2015.

Appendix B. Documentation Related to Regional Conformity

Regional Emissions Analysis Conducted for Conforming RTP

The regional emissions analysis found that regional emissions will not exceed the SIP's emission budgets for mobile sources in the build year, a horizon year at least 20 years from when conformity analysis started, and additional years meeting conformity regulation requirements for periodic analysis. The regional emissions analysis was based on the latest population and employment projections for Orange County that were adopted by the Southern California Association of Governments at the time the conformity analysis was started on July 2011. These assumptions are less than five years old. The modeling was conducted using current and future population, employment, traffic, and congestion estimates. The traffic data, including the fleet mix data, were based on the most recently available vehicle registration data included in the EMFAC model. EMFAC2011 was used, which was the most recent version of the model developed by the California Air Resources Board and approved for use in California by the U.S. EPA at the time of the analysis.

The proposed project will be implemented in two phases. The first phase would add one GP lane in each direction on I-405 from Euclid Street to the I-605 interchange and provide additional capital improvements. The second phase would add a tolled Express Lane in each direction of I-405 from SR-73 to SR-22 East. The tolled Express Lane and the existing HOV lanes would be managed jointly as a tolled Express Facility with two lanes in each direction from SR-73 to I-605. On September 11, 2014, the SCAG Regional Council approved Amendment #2 to the 2012-2035 RTP/SCS after a 30-day public review and comment period. Amendment #2 was developed as a response to changes to projects in the 2012-2035 RTP/SCS. The proposed project is described as "I-405 from SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310." and "Add 1 MF lane in each direction, and additional capital improvements: Convert Existing HOV to HOT, add 1 additional HOT lane each direction" (RTP/FTIP ID ORA030605).

Regarding the FTIP, on December 16, 2014, the SCAG Regional Council approved Amendment #15-02 to the 2015 FTIP. This administrative modification did not require federal approval and included the first phase of the proposed project. The project description stated, "I-405 FROM SR-73 TO I-605. Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310." On December 19, 2014, the SCAG Regional Council approved Amendment #15-03 to the 2015 FTIP. The Federal Transit Administration and FHWA approved Amendment #15-03 on January 26, 2015. The project description in Amendment #15-03 states, "I-405 from SR-73 to I-605. Convert existing HOV to HOT. Add 1 additional HOT lane each direction."

Public and Interagency Consultation Process for TIP

The federal TIP was developed in accordance with the Southern California Association of Governments policies for community input and interagency consultation procedures. These

procedures ensure that the public has adequate opportunity to be informed of the federal TIP development process and encourages public participation and comment.

The SCAQMD submitted a comment letter on the Draft EIR/EIS dated July17, 2012 that, in part, addressed concerns over the project being discussed as a TCM. The letter is included in Appendix R1 of the Final EIR/EIS and identified as Letter GR4. The relevant comment, identified as Comment GR4-4, stated:

> Page 1-21 of the Draft EIR states that the proposed project qualifies as a Transportation Control Measure (TCM), but does not provide any information in the Draft EIR to support this determination. AQMD notes that our 2007 Air Quality Management Plan (AQMP) does not identify the proposed project as a TCM. While certain elements of the project alternatives in the Draft EIR may be applicable to TCM ORA030605, this measure alone does not qualify the project as a TCM. [TCM] ORA030605 is specific to the design of "HOV to HOV lane connectors," but this TCM captures only a small portion of the proposed project. Further, based on the operational emissions analysis the project will result in an increase of SO_X, PM10 and PM2.5. Therefore, the AQMD staff strongly recommends that the lead agency provide clarification of the project's qualifications as a TCM.

Response:

Section 1.2.2.6, Air Quality Improvements has been modified to remove reference that the project is a TCM in the AQMP. However, Section 1.2.2.7 has been updated stating that the project is identified as a new TCM in Table III-2.3 of the 2015 FTIP.

U.S. Department of Transportation
Federal Highway Administration

California Division

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(916) 498-5001
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January 26, 2015

In Reply, Refer To:
HDA-CA

Mr. Bruce de Terra
Division Chief
Transportation Programming Federal Resources Office, M.S. 82
California Department of Transportation
1120 N Street
Sacramento, CA 95814

SUBJECT: SCAG 2015 FTIP AMENDMENT NO. 15-03 AND CONFORMITY DETERMINATION

Dear Mr. de Terra:

The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) have completed our reviews of Amendment No. 15-03 to the Southern California Association of Governments' (SCAG) 2015 – 2018 Federal Transportation Improvement Program (FTIP), which was submitted by your letter dated January 5, 2015. As detailed in your letter's enclosure, this amendment requests to add one (1) new individual project listing to SCAG's FTIP and California's Federal Statewide Transportation Improvement Program (FSTIP).

We have determined that the added project listing from this amendment is from SCAG's adopted 2012/2035 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), and the addition requested relies on a previous regional emissions analysis. Acceptance of this amendment and the air quality conformity determination have been coordinated with Region IX of the Environmental Protection Agency (EPA) in accordance with the procedures outlined in the *National Memorandum of Understanding (MOU) between the Department of Transportation (DOT) and EPA on Transportation Conformity*, dated April 25, 2000. Accordingly, we find that SCAG's FTIP – including Amendment No. 15-03 – conforms to the applicable State Implementation Plan (SIP) for air quality.

Pursuant the December 15, 2014 *MOU, between the FHWA – California Division and FTA – Region IX*, and based on our review of information submitted with the State's proposed 2015 – 2018 FSTIP, which includes revenues, proposed project funding information to demonstrate financial constraint, and statewide and metropolitan planning process documentation, we accept this FSTIP modification proposed for the SCAG region in accordance with the Final Rule on Statewide and Metropolitan Transportation Planning that was published in the February 14, 2007 Federal Register. We have determined the amended SCAG FTIP, including Amendment No. 15-

03, is financially constrained as required by the Federal surface transportation program authorizing legislation and statewide planning, metropolitan planning, and programming regulations. SCAG's FTIP was developed through a continuing, cooperative, and comprehensive transportation planning process in accordance with the metropolitan transportation planning provisions of 23 United States Code (U.S.C.) § 134 and 49 U.S.C. Chapter 53.

Approval is provided with understanding that eligibility determination of individual projects for funding must be met, and the applicant must ensure satisfaction of all administrative and statutory requirements. If you have questions or need additional information concerning our FSTIP approval for this amendment, please contact Michael Morris of the FHWA California Division's Cal-South office at (213) 894-4014, or by email at michael.morris@dot.gov; or Ted Matley of the FTA Region IX office at (415) 744-2590, or by email at ted.matley@dot.gov.

Sincerely,

For: Vincent P. Mammano
Division Administrator

County	System	Lead Agency	RTP ID	FTIP ID	Begin PM	End PM	Route #	Route Name	From	To	Description	Baseline	Completion Year	Model Segment	Roadway Segment: Route Name	Roadway Segment: Length	Roadway Segment: From	Roadway Segment: To	Roadway Segment: Description	Roadway Segment: Existing Lanes	Roadway Segment: Proposed Lanes	Transit Segment: Route	Additional Details
Orange	State Highway	CALTRANS	ORA000193	ORA000194	0.91	1.1	405				HOV connectors from I-405 to I-605, between Katella Ave. (I-605 PM R001.104) and Seal Beach Blvd. (I-405 PM 022.643), with a second HOV lane in each direction on I-405 between the two direct connectors. Toll Credits in FY 13/14 for $22,940 and FY14/15 for	X	2014		405	0.19	Katella	Seal Beach Blvd	HOV Connector	4	4		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA030605	ORA030605	9.3	24.2	405				I-405 From SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310		2022		405	0	0 17.8 chestnut	0 17.8 goldenwest	Bridge Widening (ORA045)	4	6		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA030605	ORA030605	9.3	24.2	405				I-405 From SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310		2022		405	0	0 Beach/Edinger	0 Beach/Edinger	Remove off ramp NE corner (ORA100507)	1	0		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA030605	ORA030605	9.3	24.2	405				I-405 From SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310		2022		405	0	0 n/a Bolsa Chica Road	0 n/a Dunncannon	3000 ft street widening (ORA151)	5	6		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA030605	ORA030605	9.3	24.2	405				I-405 From SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310		2022		405	0	0 n/a Goldenwest Bridge	0 n/a Goldenwest Bridge	widen bridge over I-405	5	6		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA030605	ORA030605	9.3	24.2	405				I-405 From SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310		2022		405	14.9	SR-73	I-605	Add 1 Mixed Flow lane each direction from I-605 to Euclid Street	12	14		
Orange	State Highway	ORANGE COUNTY TRANS AUTHORITY (OCTA)	ORA030605	ORA030605	9.3	24.2	405				I-405 From SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310		2022		Beach Blvd	0	0 Beach	0 Beach	Construct 4th NB lane on Beach overcrossing (ORA100507)	3	4		
Orange	State Highway		ORA100507				405	I-405	BEACH BLVD		CONSTRUCT FOURTH NB THROUGH LANE ON BEACH BLVD AT THE I-405 INTERCHANGE AND REMOVE OFF-RAMP ON I-405 AT BEACH (NORTH-EAST CORNER OF BEACH/EDINGER). CO LEAD WITH WESTMINSTER.		2016	1									
Orange	State Highway	ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)	2M0726				405	I-405	I-5	SR-55	ADD 1 MF LANE EACH DIRECTION FROM I-5 TO SR-55 AND ADD SB AUX LANES FROM UNIVERSITY TO SAND CNYN. SAND CNYN TO 133, AND 133 TO IRV CTR DR		2023	1									Existing Config: 4 to 6 lanes each direction
Orange	State Highway	ORANGE COUNTY TRANSPORTATION AUTHORITY (OCTA)	ORA030605				405	I-405	SR-73	I-605	ADD 1 MF LANE IN EACH DIRECTION, AND ADDITIONAL CAPITAL IMPROVEMENTS (BY 2022): CONVERT EXISTING HOV TO HOT, ADD 1 ADDITIONAL HOT LANE EACH DIRECTION (BY 2035)		2035	1									
Orange	State Highway	CALTRANS	2M04131				405	I-405 NB	Jeffrey	Culver	Add auxiliary lane		2020	1									Existing Config: 4 lanes
Orange	State Highway	CALTRANS	2M0719				605	I-605	Katella on-ramp		Improve interchange		2020	1									Existing Config: 1 to 2 lane NB on-ramp, 1 lane for other ramps
Orange	Transit		ORA120537					LAGUNA NIGUEL RAIL STATION			LAGUNA NIGUEL RAIL STATION PARKING EXPANSION - CONSTRUCTION OF 562 NEW SPACES (281 EXISTING + 562 NEW = 843 SPACES)		2013	1									
Orange	Transit		2L207					Route 792	Riverside/Corona	Anaheim Resort Area	Route 792/A Riverside/Corona to Anaheim Resort Area Express Bus Service		2012	1									
Orange	Transit	ANAHEIM	2TR0701	ORA080908	0	0	0				A TRANSIT CORRIDOR FOR THE CITY OF ANAHEIM - ANAHEIM RAPID CONNECTION (ARC) FIXED GUIDEWAY SYSTEM CONNECTING THE ANAHEIM REGIONAL TRANSPORTATION INTERMODAL CENTER (ARTIC), THE PLATINUM TRIANGLE, AND THE ANAHEIM RESORT. ALTERNATIVES ANALYSIS, EIR/EIS, LPA		2019									0	
Orange	Transit	ANAHEIM	2TR0701	ORA080908	0	0	0				A TRANSIT CORRIDOR FOR THE CITY OF ANAHEIM - ANAHEIM RAPID CONNECTION (ARC) FIXED GUIDEWAY SYSTEM CONNECTING THE ANAHEIM REGIONAL TRANSPORTATION INTERMODAL CENTER (ARTIC), THE PLATINUM TRIANGLE, AND THE ANAHEIM RESORT. ALTERNATIVES ANALYSIS, EIR/EIS, LPA		2019									N/A	

Orange County Transportation Authority

2015 Federal Transportation Improvement Program ($000)

TIP ID **ORA030605** Implementing Agency **Orange County Transportation Authority (OCTA)**

SCAG RTP Project #: ORA030605

PPNO:

EA Number:

IFAS #: FK101

System: State Hwy | Route: 405 | Postmile: 9.3 to 24.2

Program Code
CAX63 - HIGHWAY/ROAD IMP - LANE ADD'S (NO HOV LANES): RS

Enviromental Document
DRAFT ENVIRONMENTAL IMPACT REPORT - 04/01/2013

Conformity Category
NON-EXEMPT

Air Basin
SCAB

Project Completion Date
09/30/2022

Current Implementation Status
Environmental Document/Pre-Design Phase (PAED) - 02/28/2011

Project Manager
Jeff Mills - (714) 560-5925

Last Modified By
Pontip Somchai on 11/17/2014

Project Title
I-405 FROM SR-73 TO I-605 ADD 1 MF LANE EACH DIR AND PROVIDE ADDITIONAL CAPITAL IMPROVEMENTS

Project Description
I-405 FROM SR-73 TO I-605. Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310.

Fiscal Year	Revenue Source	Engineering	Right of Way	Construction	Total Revenue
14/15	STPL-R - STP Local Regional	$8.708		$2.392	$11.100
15/16	STPL-R - STP Local Regional			$8.900	$8.900
12/13	DEMOT21 - Demonstration - Tea 21	$5.560			$5.560
12/13	DEMOSTL - Demonstration - SAFETEA-LU	$968			$968
12/13	2006EAR - FFY 2006 Appropriation Earmarks	$990			$990
07/08	ORAFWY2 - Orange County Sales Tax Measure	$3.150			$3.150
08/09	ORAFWY2 - Orange County Sales Tax Measure	$368			$368
14/15	ORAFWY2 - Orange County Sales Tax Measure	$71,626	$96,000		$167,626
15/16	ORAFWY2 - Orange County Sales Tax Measure			$1,098,208	$1,098,208
14/15	LOC-AC - Local Transportation Funds - Advance Co			$8,900	$8,900
15/16	LOC-AC - Local Transportation Funds - Advance Co			$-8,900	$-8,900
14/15	Federal Disc. - Interstate Maintenance	$1.130			$1.130
		$92,500	**$96,000**	**$1,109,500**	**$1,298,000**

Administrative Comments:
CA249 ($3,100)+ CA256 ($984) + CA269 ($984) + CA270 ($492) = $5,560 in FY12/13 Federal Disc
IMD 2009 ($380) + IMD 2010 ($750) = $1,130 in Federal Disc. IMD.
SAFETEA-LU #28 ($400) + SAFETEA-LU #317 ($2,568) = $2,968 in FY12/13 DEMOSTL
CA797 ($990) in FY12/13 2006 Appropriation
SAFETEA-LU #317 ($414,000 of $2.968 million obligated).
15/16 RSTP AC

Last Revised **Amendment 15-02 - Submitted**

Total Cost **$1,298,000**

Orange County Transportation Authority

2015 Federal Transportation Improvement Program ($000)

TIP ID **ORA030605A** Implementing Agency **Orange County Transportation Authority (OCTA)**

SCAG RTP Project #: ORA030605

PPNO:

EA Number:

IFAS #:

System: State Hwy | Route: 405 | Postmile: 9.3 to 24.2

Program Code
STUDY - PROJECT STUDY

Enviromental Document
DRAFT ENVIRONMENTAL IMPACT REPORT - 04/01/2013

Conformity Category
EXEMPT - 93.126

Air Basin
SCAB

Project Completion Date
12/31/2035

Current Implementation Status
Environmental Document/Pre-Design Phase (PAED) - 10/17/2014

Project Manager
Jeff Mills - (714) 560-5925

Last Modified By
Pontip Somchai on 12/02/2014

Administrative Comments:
Match for federal funds will be provided through ORA030605.

Project Title
I-405 from SR-73 to I-605. Convert existing HOV to HOT. Add 1 additional HOT lane each direction (by 2035).

Project Description
I-405 from SR-73 to I-605. Convert existing HOV to HOT. Add 1 additional HOT lane each direction (by 2035).

Fiscal Year	Revenue Source	Engineering	Right of Way	Construction	Total Revenue
14/15	DEMOSTL - Demonstration - SAFETEA-LU	$2.000			$2.000
		$2,000	**$0**	**$0**	**$2,000**

Last Revised **Amendment 15-03 - SCAG PENDIN**

Total Cost **$2,000**

TABLE III-2.3 ORANGE COUNTY NEW TCMS			
LEAD AGENCY	**PROJECT ID**	**PROJECT DESCRIPTION**	**2013 FTIP COMPLETION DATE**
ANAHEIM	ORA112622	BROOKHURST ST (600' NORTH OF I-5 TO SR-91). ADD ONE LANE EACH DIRECTION. FROM 4 TO 6 LANE FACILITY WITH RAISED MEDIAN. THE PROJECT WILL INCLUDE SIX-FOOT-WIDE CLASS II BIKEWAYS, TEN-FOOT WIDE PARKWAYS/SIDEWALKS AND CONCRETE SOUNDWALLS ALONG THE EAST AND/OR WEST SIDES OF BROOKHURST ST. CONSISTENT WITH THE 2012 RTP	6/30/2017
ANAHEIM	ORA120318	ANAHEIM REGIONAL TRANS INTERMODAL CENTER (ARTIC) PHASE I - INCLUDE EXPAND OF EXIST AMTRAK/METROLINK STATION AT ANA STAD TO PROVIDE ACCESS W/ TRANS SVC. TOLL CREDITS FTA 5337 FY 12/13 FOR $1,600. TOLL CREDITS FOR FTA 5309C FY12/13 FOR $1,500. TOLL CREDITS FOR CMAQ FY 13/14 FOR $2,747.	6/30/2018
OCTA	ORA030605	I-405 FROM SR-73 TO I-605 ADD 1 MF LANE IN EACH DIRECTION, AND ADDITIONAL CAPITAL IMPROVEMENTS. COMBINED WITH ORA045, ORA151, ORA100507 AND ORA120310	9/30/2022
OCTA	ORA030612	PLACENTIA TRANSIT STATION - E OF SR-57 AND MELROSE ST AND N OF CROWTHER AVE. CONSTRUCT NEW METROLINK STATION AND RAIL SIDEING PPNO 9514	4/30/2016
OCTA	ORA081619	STATION REHABILITATION AND REPAIR IMPROVMENTS FOR ORANGE COUNTY METROLINK STATIONS	5/11/2015
OCTA	ORA110304	GOLDENWEST TRANSPORTATION CENTER. CONSTRUCT A SURFACE PARKING LOT (300 SPACES)	4/30/2016
OCTA	ORA111210	I-5 FROM SR 55 TO SR 57 - ADD 1 HOV LANE EACH DIRECTION	12/1/2018
OCTA	ORA112005	IMPLEMENT BIKE STATIONS AND BIKE SHARING PROGRAM IN ORANGE COUNTY	10/30/2015
OCTA	ORA112702	RIDESHARE VANPOOL PROGRAM - CAPITAL LEASE COST FY12/13 - FY16/17. (USE TOLL CREDITS FOR $1.338 IN FY12/13)	1/31/2017
VARIOUS AGENCIES	ORA990906	GROUPED PROJECTS FOR BICYCLE AND PEDESTRIAN FACILITIES FUNDED WITH TE - SCOPE: PROJECTS ARE CONSISTENT WITH 40 CFR PART 93.126 EXEMPT TABLES 2 AND TABLE 3 CATEGORIES - BICYCLE AND PEDESTRIAN FACILITIES (BOTH MOTORIZED AND NON-MOTORIZED)	12/30/2014

TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

January 25, 2011
Minutes

THE FOLLOWING MINUTES ARE A SUMMARY OF THE MEETING OF THE TRANSPORTATION CONFORMITY WORKING GROUP. A DIGITAL RECORDING OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Meeting of the Transportation Conformity Working Group was held at the SCAG office in Los Angeles.

In Attendance:

Abrishami, Lori	LACMTA
Poe, Lisa	SANBAG
Silverman, Sam	Terry A. Hayes Associates

SCAG

Gutierrez, Pablo
Luo, Rongsheng
Mann, Betty
Sangkapichai, Mana

Via Teleconference:

Alvarez, Grace	RCTC
Behtash, Armand	Caltrans, District 12
Brady, Mike	Caltrans Headquarters
Cacatian, Ben	VCAPMD
Chang, Paul	Caltrans, District 12
Cooper, Keith	ICF International
Crow, Jason P.	ARB
De Haan, Peter	VCTC
Gallo, Ilene	Caltrans, District 11
Kennedy, Eileen	Caltrans, District 12
Kratovil, Aimee	FHWA
Krebs, Cindy	OCTA
Kuo, Ryan	SCAG
Marquez, Jose	Caltrans, District 11
Nudd, Greg	U.S. EPA
O'Connor, Karina	U.S. EPA, Region 9
Wade, Dennis	ARB
Walecka, Carla	Transportation Corridor Agencies
Yoon, Andrew	Caltrans, District 7

TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

January 25, 2011
Minutes

1.0 CALL TO ORDER, SELF-INTRODUCTION, AND NEW TCWG CHAIR

Lisa Poe, SANBAG, called the meeting to order at 10:05 a.m.

Ms. Poe announced that Lori Abrishami, LACMTA, will be the new Chair of the TCWG. Rongsheng Luo, SCAG, and Ms. Abrishami acknowledged Ms. Poe's service as a very efficient and effective TCWG Chair over the last year.

2.0 PUBLIC COMMENT PERIOD

There were no comments.

3.0 CONSENT CALENDAR

3.1 Approval Item

3.1.1 TCWG November 30, 2010 Meeting Minutes

- Joe Cassmassi, SCAQMD, was added to the teleconference participant list.

The minutes were approved with the above addition.

4.0 INFORMATION ITEMS

4.1 Review of PM Hot Spot Interagency Review Forms

1) LA0G230

It was determined that this is not a POAQC.

2) ORA001105

It was determined that this is not a POAQC.

3) ORA030605

It was determined that this is a POAQC - Requires Qualitative Hot Spot Analysis.

4) SBD_20040210

It was determined that this is not a POAQC.

4.2 FTIP Update

Pablo Gutierrez, SCAG, reported the following:

- 2011 FTIP received federal approval on December 14, 2010.
- 2011 FTIP Amendment #1 and Administrative Modification #2 had received all the necessary approvals.
- Staff continued working on Amendment # 3 and planned to post the amendment next week for a 15-day public review. After public review period, it will be forwarded to state and federal for approval.

4.3 RTP Update

Ryan Kuo, SCAG, reported the following:

- SCAG modeling staff began to establish the base year 2008 network.
- The RTP/Sustainable Communities Strategy (SCS) subregional workshops would start this month:
  - San Bernardino: Wednesday, January 26.
  - Imperial County: Thursday, January 27.
- The 2012 RTP website would be launched soon and future workshop schedule can be found on the website.

In respond to a question, Mr. Kuo stated that

- The 2011 FTIP was only used as a starting point for developing the baseline. The transportation conformity criteria will be applied to projects in the 2011 FTIP to develop the baseline.

4.4 Update re. EPA's Proposed Partial Disapproval of the SCAB PM2.5 SIP

Karina O'Conner, EPA, reported the following:

- The public comment period ended on Friday January 21. Comments were received from a private citizen, NRDC, CBE, ARB and SCAQMD.
- EPA will review the comments and draft responses to the comments. All comments and responses will be posted online and included into the final proposal. The docket number to use for "keyword" search at www.regulations.gov is: EPA-R09-OAR-2009-0366.

In response to a question, Ms. O'Connor stated the following:

- There will be no EPA publications or official actions prior to the Mid-Course Review in April. However, EPA will continue working closely with ARB to resolve the issue and will review and share ARB documents.

Dennis Wade, ARB, reported the following:

- ARB submitted its comments on Friday (January 21) and the comments are consistent with SCAQMD's comments.

In response to a question, Mr. Wade stated the following:

- The two ARB rules (the In-use Truck and Bus Regulation and the In-use Off-road Equipment Regulation), adopted by the ARB Board in December 2010, will be submitted to EPA. However, no specific submission date at this time.

Rongsheng Luo, SCAG, noted that SCAG is concerned about the timing of the resolution because SCAG is in the process of developing the 2012 RTP which requires emission budgets for conformity analysis.

4.5 EPA's Proposed Rule: Reasonable Further Progress Requirements for the 1997 8-Hour Ozone National Ambient Air Quality Standard

Greg Nudd, EPA, reported the following:

- Under the current rule, certain emission reductions from sources located outside a nonattainment area could be credited toward meeting the 1997 8-Hour Ozone RFP requirement. EPA is proposing to revise the existing rule to disallow credits from outside nonattainment areas.
- The proposed rule only impacts three areas in the nation, all in the SCAG region: Coachella Valley, Ventura County, and West Mojave Desert. EPA's initial assessment indicated that the impact on Coachella Valley and Ventura County are minimal while the impact on Western Mojave Desert is more significant.
- If the proposal is finalized as currently proposed, it will be more challenging for these areas to meet the RFP requirements and may limit the extent to which regional programs can be creditable toward RFP. New RFP demonstrations will also be needed to submit for these areas.
- At this point EPA is requesting comments on the proposal. The public comment period will end on February 7 and the proposal is expected to be finalized in April.
- Under the worst case scenario, if the proposal is finalized as currently proposed, the RFP demonstration in the SIPs will become un-approvable, however, an additional set of EPA actions would be needed to propose any SIP disapproval.
- There are no implications to either the emission budgets or conformity unless any SIPs are disapproved.

In response to questions, Ms. O'Connor stated that

- At this point, it was still too early in the process to have a specific timeline and to conclude any SIP or conformity implications of the proposal.
- The current Ventura County Ozone RFP emission budgets can be used for developing draft 2012 RTP.
- This proposed rule would not result in final SIP disapproval. EPA would need to issue another proposed rule relative to SIP disapproval.

Dennis Wade, ARB, reported the following:

- ARB will submit comments before February 7 and will continue working closely with EPA.

Rongsheng Luo, SCAG, emphasized that SCAG is concerned about the timing issue of the process.

4.6 EPA update

Karina O'Connor, EPA, reported the following:

- Update on the Related Consent Decree: The Consent Decree has not yet been lodged for the litigation on the South Coast AQMP, but the dates should be similar to the San Joaquin Valley Control District, which has been lodged. The South Coast plan litigation involves both PM2.5 and ozone plan with final EPA action on the PM2.5 plan by 9/30/11, and final EPA action on the ozone plan by 12/15/11. The litigants are NRDC and Coalition for a Safe Environment.
- Update on EPA's Quantitative PM Hot-spot Guidance: The FR notice starting the grace period was published on December 20th and the final guidance was posted on the EPA, OTAQ web site. The grace period ends on December 20th, 2012. There is a webinar coming up on February 9th and EPA is working with ARB and Caltrans to modify the 3 day course that EPA and FHWA are developing on application of the methodology for California. The course will cover use of EMFAC, Cal3HQC and AERMOD. This webinar will provide an overview of EPA's final guidance document "Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas," released December 2010. This overview is appropriate for all those who will be involved in developing or reviewing hot-spot analyses of transportation projects in PM areas, or those who want an introduction to the material in the guidance. After registering you will receive a confirmation email containing information about joining the Webinar.

Webinar: Overview of EPA's Quantitative PM Hot-Spot Guidance
Date: Wednesday, February 9, 2011
Time: 11:00am -1pm PST

- Update on AP-42: The January 2011 update to the fugitive dust paved road emission methodology was posted to the EPA TTN earlier this month. A federal register notice, similar to EMFAC or MOVES approval notices, has been drafted and that notice is expected to be signed this week and published by mid-February. That notice will start a grace period for use of the revised method, however, areas are free to use the method sooner. The revised section includes a revisions of the equation used to predict PM emissions, an extension of the applicable range of speeds down to 1 mph from the previous 10 mph, and the incorporation of a mobile monitoring methodology to dynamically characterize the silt loading or PM emissions from a roadway system. On average, it is estimated that PM10 emissions predicted by the revised equation are less than the emissions predicted by the 2006 equation. However, some silt loading and average vehicle weight conditions could result in greater estimated emissions. Some PM2.5 estimates will go up and some will go down depending up on the previous methodology used and the local data used.

4.7 ARB update

Dennis Wade, ARB, reported the following:

- ARB staff continued working on the new EMFAC and expected to release a draft of EMFAC2010 (name subjected to change) in the next 30-45 days

4.8 Air Districts Update

None

5.0 INFORMATION SHARING

Aimee Kratovil, FHWA, reported the restructuring of the FHWA LA Metro Office:

- Previously there were four positions in the LA Metro office: a Senior Transportation Engineer, an Administrative Program Assistant, an ITS Engineer, and a Transportation Planner.
- Michael Morris will resume the Transportation Planner position from Michelle Noch. He has been with FHWA since August 2006 and his most recent position was as a Transportation Planner in the California Division Office in Sacramento.
- Six more positions are being added to the LA Metro Office including an Associate Division Administrator, two Senior Transportation Engineers, a

Transportation Engineer, a Border Specialist, and a Finance Specialist. All these positions have been filled with the exception of the Finance Specialist position which is anticipated to be filled soon. It is also anticipated that these staffs will report to duty to the LA Metro Office by this Spring and the California Division will make a more formal announcement soon.

- Ms. Kartovil will resume responsibility of project level conformity review from Stew Sonnenberg. She requested that Mr. Sonnenberg email be removed from mailing list.

Mike Brady, Caltrans Headquarters, stated that the next Statewide Conformity Working Group Meeting will be held on March 10, from 9am-12pm. Mr. Brady requested that proposed agenda items, if any, be sent to him.

6.0 ADJOURNMENT

Lori Abrishami adjourned the meeting at 11:15 a.m.

The next Transportation Conformity Working Group meeting will be held on February 22, 2011 at the SCAG office in Los Angeles.

Appendix C. Carbon Monoxide Hot-Spot Analysis and Modeling Procedures

The ambient air quality effects of project-related traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989) and the modeling procedures described below. These procedures are based on Appendix B of the Caltrans/UCD CO Protocol.

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis prepared for this project. Carbon monoxide modeling was conducted using worst-case a.m. or p.m. peak-hour traffic volumes. The peak hour used was chosen to represent the one with the most stable meteorological conditions.

Carbon monoxide modeling was performed for the following scenarios:

- Open-to-traffic year (2020) with project, and
- 20-year horizon year horizon (2040) with project.

Vehicle Emission Rates

Vehicle emission rates were determined using the California Air Resources Board's EMFAC2011 emission rate program.

Receptor Locations

CO concentrations were estimated at eight receptor locations (sidewalk corners) located the most congested intersections affected by the project. Those intersections included the following:

- Bristol Street and I-405 NB Off-Ramp/South Coast Plaza
- Euclid Street and I-405 NB Ramps/Newhope Street
- I-405 SB Ramps and Ellis Avenue
- Magnolia Street and Warner Avenue
- Beach Boulevard and McFadden Avenue
- Beach Boulevard and I-405 SB Ramps
- Goldenwest Street and Bolsa Avenue
- Springdale Street and Westminster Boulevard
- I-405 NB Off-Ramps/SR-22 EB Ramps and Garden Grove Boulevard
- Seal Beach Boulevard and I-405 SB Ramps

Receptors were chosen based on Caltrans' CO Protocol. Figure 3 shows the modeling network and receptors used for the proposed interchange analysis. Receptor heights were set at

approximately 6 feet (1.8 meter). U.S. EPA modeling guidance suggests that receptors normally be chosen to be around breathing height (1.8 meters).

Figure 3 shows the modeling network and receptors.

Meteorological Conditions

Meteorological inputs to the CALINE4 model were determined using the methodology recommended in the CO Protocol (Garza et al. 1997). The meteorological conditions used in the modeling represent a calm winter period. The worst-case wind angles option was used to determine a worst-case concentration for each receptor. The meteorological inputs include:

- 0.28 feet per second wind speed;
- F(6) stability class ground-level temperature inversion;
- 10 degree wind direction standard deviation; and
- 305-foot mixing height.

Background Concentrations and 8-Hour Values

A background concentration of 2.4 parts per million (ppm) was added to the modeled 1-hour values to account for sources of CO not included in the modeling. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7. A background concentration of 1.7 ppm was added to the modeled 8-hour values. All background concentration data were taken from the monitoring data provided by the Air Resource Board (California Air Resources Board, 2007) for the Costa Mesa Monitoring Station.

The CO air quality modeling results are shown in Table 2.

SOURCE: State of California, Department of Transportation; TAHA, 2014.

taha
environmental planners

Interstate 405 Corridor Project
Qualitative Hotspot Analysis
STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION

FIGURE 3

CARBON MONOXIDE MODELING NETWORK AND RECEPTORS

Table 2. CO Modeling Results (in Parts Per Million)

Intersection	Future With Project (2020) 1-Hr	Future With Project (2020) 8-Hr	Future With Project (2040) 1-Hr	Future With Project (2040) 8-Hr
Bristol Street and I-405 NB Off-Ramp/South Coast Plaza	4.5	3.2	3.8	2.7
Euclid Street and I-405 NB Ramps/Newhope Street	4.2	3.0	3.7	2.6
I-405 SB Ramps and Ellis Avenue	3.8	2.7	3.5	2.5
Magnolia Street and Warner Avenue	4.3	3.0	3.7	2.6
Beach Boulevard and McFadden Avenue	4.6	3.2	3.9	2.8
Beach Boulevard and I-405 SB Ramps	4.5	3.2	4.1	2.9
Goldenwest Street and Bolsa Avenue	4.2	3.0	3.8	2.7
Springdale Street and Westminster Boulevard	4.0	2.8	3.7	2.6
I-405 NB Off-Ramps/SR-22 EB Ramps and Garden Grove Boulevard	4.3	3.0	3.5	2.5
Seal Beach Boulevard and I-405 SB Ramps	4.6	3.2	3.6	2.5
CO Threshold	**35**	**9**	**35**	**9**

Intersection LOS Summary – Existing Conditions

Location	AM Peak Hour	PM Peak Hour
BRISTOL STREET INTERCHANGE		
Anton/South Coast Plaza & Bristol Street	B	C
I-405 NB Off-Ramp/South Coast Plaza & Bristol Street	B	C
I-405 NB On-Ramp (for NB Bristol Street) & Bristol Street	--	--
I-405 NB On-Ramp (for SB Bristol Street) & Bristol Street	--	--
I-405 SB On-Ramp (for SB Bristol Street) & Bristol Street	--	--
I-405 SB Off-Ramp & On-Ramp (for NB Bristol Street) & Bristol Street	B	B
FAIRVIEW ROAD INTERCHANGE		
I-405 NB Ramps & Fairview Road	C	C
I-405 SB Ramps & Fairview Road	B	C
South Coast Drive & I-405 NB Off-Ramp t	C	C
HARBOR BOULEVARD & HYLAND AVENUE INTERCHANGE		
I-405 NB On-Ramp/South Coast Dr & Hyland Avenue	A	A
I-405 SB On-Ramp (for SB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 NB Off-Ramp & Harbor Boulevard	B	C
I-405 NB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 SB Off-Ramp & Harbor Boulevard	B	B
I-405 SB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
Gisler Avenue & Harbor Boulevard	C	C
Ikea Way & Susan Street	A	A
EUCLID STREET & ELLIS AVENUE INTERCHANGE		
I-405 NB Ramps/Newhope Street & Euclid Street	C	D
Ellis Avenue I-405 SB Ramps	D	D
BROOKHURST STREET & TALBERT AVENUE INTERCHANGE		
Slater Avenue & Brookhurst Street	D	D
I-405 NB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to NB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB On-Ramp (for NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to SB Brookhurst Street) & Brookhurst Street	--	--
Talbert Avenue & Brookhurst Street	D	D
Talbert Avenue & I-405 SB On-Ramp (for EB Talbert Avenue)	--	--
MAGNOLIA STREET & WARNER AVENUE INTERCHANGE		
Heil Avenue & Magnolia Street	C	B
I-405 NB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 NB Off-Ramp (to NB Magnolia Avenue) & Magnolia Street	--	--
I-405 NB On-Ramp (for NB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB Off-Ramp (to NB & SB Magnolia Avenue) & Magnolia Street	A	B
Warner Avenue & Magnolia Street	D	D
Warner Avenue & I-405 SB On-Ramp (for EB Warner Avenue)	--	--
Warner Avenue & I-405 SB Off-Ramp (to EB Warner Avenue)	--	--
Warner Avenue & I-405 NB Off-Ramp (to WB Warner Avenue)	--	--
Warner Avenue & I-405 NB On-Ramp (for WB Warner Avenue)	--	--

Location	AM Peak Hour	PM Peak Hour
BEACH BOULEVARD & EDINGER AVENUE INTERCHANGE		
McFadden Avenue & Beach Boulevard	D	E
I-405 NB On-Ramp (for SB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB Off-Ramp (to NB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB Off-Ramp (to SB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB On-Ramp (for NB Beach Boulevard) & Beach Boulevard	--	--
Center Avenue & Beach Boulevard	B	B
Center Avenue (Huntington Beach Mall) & I-405 SB Ramps	B	C
I-405 SB Off-Ramp (to NB Beach Boulevard) & Beach Boulevard	--	--
Edinger Avenue & Beach Boulevard	E	E
Edinger Avenue & I-405 SB On-Ramp	--	--
GOLDENWEST STREET & BOLSA AVENUE INTERCHANGE		
I-405 NB On-Ramp (for NB Goldenwest Street) & Goldenwest Street	--	--
Westminster Mall & I-405 SB Ramps	A	A
Westminster Mall & Goldenwest Street	A	B
Bolsa Avenue & Goldenwest Street	D	D
Bolsa Avenue & I-405 SB On-Ramp (for EB Bolsa Avenue)	--	--
Bolsa Avenue & I-405 SB Off-Ramp (to EB Bolsa Avenue)	B	B
Bolsa Avenue & I-405 NB Off-Ramp (to WB Bolsa Avenue)	--	--
SPRINGDALE STREET & WESTMINSTER BOULEVARD INTERCHANGE		
I-405 SB Off-Ramp & Springdale Street	D	E
Westminster Boulevard & Springdale Street	D	D
Westminster Boulevard & I-405 SB On-Ramp	--	--
Westminster Boulevard & I-405 SB Off-Ramp (to EB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB Off-Ramp (to WB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB On-Ramp	--	--
Westminster Boulevard & I-405 NB Off-Ramp/Willow Lane	B	B
BOLSA CHICA ROAD – VALLEY VIEW STREET & GARDEN GROVE BOULEVARD INTERCHANGE		
Garden Grove Boulevard & I-405 NB Off-Ramp/SR-22 EB Ramps	D	D
Garden Grove Boulevard & Bolsa Chica Rd/Valley View Street	C	F
I-405 SB On-Ramp (for SB Bolsa Chica Rd) & Bolsa Chica Rd	--	--
I-405 SB Off-Ramp (to SB Bolsa Chica Rd) & Bolsa Chica Rd	--	--
SR-22 WB/I-405 NB On-Ramp (for SB Valley View St) & Valley View Street	--	--
SR-22 WB/I-405 NB On-Ramp (for NB Valley View St) & Valley View Street	--	--
SEAL BEACH BOULEVARD INTERCHANGE		
I-405 NB Ramps & Seal Beach Boulevard	C	C
I-405 SB Ramps & Seal Beach Boulevard	D	F
BEAR STREET INTERCHANGE AT SR-73		
SR-73 NB Ramps & Bear Street	B	B
SR-73 SB Ramps & Bear Street	B	B
KATELLA AVENUE/WILLOW STREET INTERCHANGE AT I-605		
Katella Avenue & I-605 NB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 NB On-Ramp (for EB Katella Avenue)	A	A
Katella Avenue & I-605 NB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 NB Off-Ramp (to WB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 SB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for EB Katella Avenue)	--	--
Willow Street & I-605 SB Off-Ramp (to WB Willow St)	--	--

Intersection LOS Summary – No Build Alternative (Year 2020)

Location	AM Peak Hour	PM Peak Hour
BRISTOL STREET INTERCHANGE		
Anton/South Coast Plaza & Bristol Street	B	D
I-405 NB Off-Ramp/South Coast Plaza & Bristol Street	--	--
I-405 NB On-Ramp (for NB Bristol Street) & Bristol Street	--	--
I-405 NB On-Ramp (for SB Bristol Street) & Bristol Street	--	--
I-405 SB On-Ramp (for SB Bristol Street) & Bristol Street	B	B
I-405 SB Off-Ramp & On-Ramp (for NB Bristol Street) & Bristol Street	B	D
FAIRVIEW ROAD INTERCHANGE		
I-405 NB Ramps & Fairview Road	F	D
I-405 SB Ramps & Fairview Road	C	C
South Coast Drive & I-405 NB Off-Ramp t	C	C
HARBOR BOULEVARD & HYLAND AVENUE INTERCHANGE		
I-405 NB On-Ramp/South Coast Dr & Hyland Avenue	A	A
I-405 SB On-Ramp (for SB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 NB Off-Ramp & Harbor Boulevard	C	C
I-405 NB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 SB Off-Ramp & Harbor Boulevard	B	B
I-405 SB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
Gisler Avenue & Harbor Boulevard	C	D
Ikea Way & Susan Street	A	A
EUCLID STREET & ELLIS AVENUE INTERCHANGE		
I-405 NB Ramps/Newhope Street & Euclid Street	C	D
Ellis Avenue I-405 SB Ramps	F	F
BROOKHURST STREET & TALBERT AVENUE INTERCHANGE		
Slater Avenue & Brookhurst Street	F	D
I-405 NB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to NB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB On-Ramp (for NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to SB Brookhurst Street) & Brookhurst Street	--	--
Talbert Avenue & Brookhurst Street	F	E
Talbert Avenue & I-405 SB On-Ramp (for EB Talbert Avenue)	--	--
MAGNOLIA STREET & WARNER AVENUE INTERCHANGE		
Heil Avenue & Magnolia Street	C	B
I-405 NB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 NB Off-Ramp (to NB Magnolia Avenue) & Magnolia Street	--	--
I-405 NB On-Ramp (for NB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB Off-Ramp (to NB & SB Magnolia Avenue) & Magnolia Street	A	B
Warner Avenue & Magnolia Street	D	F
Warner Avenue & I-405 SB On-Ramp (for EB Warner Avenue)	--	--
Warner Avenue & I-405 SB Off-Ramp (to EB Warner Avenue)	--	--
Warner Avenue & I-405 NB Off-Ramp (to WB Warner Avenue)	--	--
Warner Avenue & I-405 NB On-Ramp (for WB Warner Avenue)	--	--

Location	AM Peak Hour	PM Peak Hour
BEACH BOULEVARD & EDINGER AVENUE INTERCHANGE		
McFadden Avenue & Beach Boulevard	F	F
I-405 NB On-Ramp (for SB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB Off-Ramp (to NB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB Off-Ramp (to SB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB On-Ramp (for NB Beach Boulevard) & Beach Boulevard	--	--
Center Avenue & Beach Boulevard	B	C
Center Avenue (Huntington Beach Mall) & I-405 SB Ramps	B	C
I-405 SB Off-Ramp (to NB Beach Boulevard) & Beach Boulevard	--	--
Edinger Avenue & Beach Boulevard	F	F
Edinger Avenue & I-405 SB On-Ramp	--	--
GOLDENWEST STREET & BOLSA AVENUE INTERCHANGE		
I-405 NB On-Ramp (for NB Goldenwest Street) & Goldenwest Street	--	--
Westminster Mall & I-405 SB Ramps	A	A
Westminster Mall & Goldenwest Street	B	B
Bolsa Avenue & Goldenwest Street	D	F
Bolsa Avenue & I-405 SB On-Ramp (for EB Bolsa Avenue)	--	--
Bolsa Avenue & I-405 SB Off-Ramp (to EB Bolsa Avenue)	B	B
Bolsa Avenue & I-405 NB Off-Ramp (to WB Bolsa Avenue)	--	--
SPRINGDALE STREET & WESTMINSTER BOULEVARD INTERCHANGE		
I-405 SB Off-Ramp & Springdale Street	E	E
Westminster Boulevard & Springdale Street	D	E
Westminster Boulevard & I-405 SB On-Ramp	--	--
Westminster Boulevard & I-405 SB Off-Ramp (to EB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB Off-Ramp (to WB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB On-Ramp	--	--
Westminster Boulevard & I-405 NB Off-Ramp/Willow Lane	B	B
BOLSA CHICA ROAD – VALLEY VIEW STREET & GARDEN GROVE BOULEVARD INTERCHANGE		
Garden Grove Boulevard & I-405 NB Off-Ramp/SR-22 EB Ramps	E	E
Garden Grove Boulevard & Bolsa Chica Rd/Valley View Street	C	F
I-405 SB On-Ramp (for SB Bolsa Chica Rd) & Bolsa Chica Rd	--	--
I-405 SB Off-Ramp (to SB Bolsa Chica Rd) & Bolsa Chica Rd	--	--
SR-22 WB/I-405 NB On-Ramp (for SB Valley View St) & Valley View Street	--	--
SR-22 WB/I-405 NB On-Ramp (for NB Valley View St) & Valley View Street	--	--
SEAL BEACH BOULEVARD INTERCHANGE		
I-405 NB Ramps & Seal Beach Boulevard	C	C
I-405 SB Ramps & Seal Beach Boulevard	F	F
BEAR STREET INTERCHANGE AT SR-73		
SR-73 NB Ramps & Bear Street	B	B
SR-73 SB Ramps & Bear Street	B	B
KATELLA AVENUE/WILLOW STREET INTERCHANGE AT I-605		
Katella Avenue & I-605 NB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 NB On-Ramp (for EB Katella Avenue)	A	A
Katella Avenue & I-605 NB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 NB Off-Ramp (to WB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 SB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for EB Katella Avenue)	--	--
Willow Street & I-605 SB Off-Ramp (to WB Willow St)	--	--

Intersection LOS Summary –Build Alternative (Year 2020)

Location	AM Peak Hour	PM Peak Hour
BRISTOL STREET INTERCHANGE		
I-405 NB Off-Ramp/South Coast Plaza & Bristol Street	B	D
I-405 NB On-Ramp (for NB Bristol Street) & Bristol Street	--	--
I-405 NB On-Ramp (for SB Bristol Street) & Bristol Street	--	--
I-405 SB On-Ramp (for SB Bristol Street) & Bristol Street	--	--
I-405 SB Off-Ramp & On-Ramp (for NB Bristol Street) & Bristol Street	B	B
FAIRVIEW ROAD INTERCHANGE		
I-405 NB Ramps & Fairview Road	F	C
I-405 SB Ramps & Fairview Road	C	C
HARBOR BOULEVARD & HYLAND AVENUE INTERCHANGE		
I-405 NB On-Ramp/South Coast Dr & Hyland Avenue	A	A
I-405 SB On-Ramp (for SB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 NB Off-Ramp & Harbor Boulevard	B	C
I-405 NB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 SB Off-Ramp & Harbor Boulevard	B	B
I-405 SB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
Gisler Avenue & Harbor Boulevard	C	C
Ikea Way & Susan Street	A	A
EUCLID STREET & ELLIS AVENUE INTERCHANGE		
I-405 NB Ramps/Newhope Street & Euclid Street	C	D
Ellis Avenue (WBR to SB On-Ramp) & I-405 SB Ramps (I-405 SB On-Ramp is for WB Ellis Avenue)	B	B
Ellis Avenue (EBT to SB On-Ramp) & I-405 SB On-Ramp (for EB Ellis Avenue)	--	--
BROOKHURST STREET & TALBERT AVENUE INTERCHANGE		
Slater Avenue & Brookhurst Street	F	D
I-405 NB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to NB & SB Brookhurst Street) & Brookhurst Street	B	B
I-405 NB On-Ramp (for NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to NB & SB Brookhurst Street) & Brookhurst Street	B	B
Talbert Avenue & Brookhurst Street	F	D
Talbert Avenue & I-405 SB On-Ramp (for EB Talbert Avenue)	--	--
MAGNOLIA STREET & WARNER AVENUE INTERCHANGE		
Heil Avenue & Magnolia Street	C	B
I-405 NB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 NB Off-Ramp (to NB Magnolia Avenue) & Magnolia Street	A	A
I-405 NB On-Ramp (for NB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB Off-Ramp (to NB & SB Magnolia Avenue) & Magnolia Street	A	B
Warner Avenue & Magnolia Street	D	D
Warner Avenue & I-405 SB On-Ramp (for EB Warner Avenue)	--	--
Warner Avenue & I-405 SB Off-Ramp (to EB Warner Avenue)	--	--
Warner Avenue & I-405 NB Off-Ramp (to WB Warner Avenue)	--	--
Warner Avenue & I-405 NB On-Ramp (for WB Warner Avenue)	--	--

Location	AM Peak Hour	PM Peak Hour
BEACH BOULEVARD & EDINGER AVENUE INTERCHANGE		
McFadden Avenue & Beach Boulevard	F	F
I-405 NB Ramps (for NB and SB Beach Boulevard) & Beach Boulevard	B	B
Center Avenue & Beach Boulevard	B	B
Center Avenue (Huntington Beach Mall) & I-405 SB Ramps	B	C
Edinger Avenue & Beach Boulevard	D	E
Edinger Avenue & I-405 SB On-Ramp	--	--
GOLDENWEST STREET & BOLSA AVENUE INTERCHANGE		
I-405 NB On-Ramp (for NB Goldenwest Street) & Goldenwest Street	--	--
Westminster Mall & I-405 SB Ramps	B	B
Westminster Mall & Goldenwest Street	A	A
Bolsa Avenue & Goldenwest Street	D	D
Bolsa Avenue & I-405 SB On-Ramp (for EB Bolsa Avenue)	--	--
Bolsa Avenue & I-405 SB Off-Ramp (to EB Bolsa Avenue)	B	B
Bolsa Avenue & I-405 NB Off-Ramp (to WB Bolsa Avenue)	--	--
Option B		
Westminster Mall & I-405 SB Ramps	--	--
SPRINGDALE STREET & WESTMINSTER BOULEVARD INTERCHANGE		
I-405 SB Off-Ramp & Springdale Street	A	A
Westminster Boulevard & Springdale Street	D	D
Westminster Boulevard & I-405 SB On-Ramp	--	--
Westminster Boulevard & I-405 SB Off-Ramp (to EB Westminster Boulevard)	--	--
Option A		
Westminster Boulevard & I-405 NB Ramps (to WB & EB Westminster Boulevard)	B	B
Westminster Boulevard & Willow Lane	C	C
Option B		
Westminster Boulevard & I-405 NB Off-Ramp (to WB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB On-Ramp	--	--
Westminster Boulevard & I-405 NB Off-Ramp/Willow Lane	--	--
BOLSA CHICA ROAD – VALLEY VIEW STREET & GARDEN GROVE BOULEVARD INTERCHANGE		
Garden Grove Boulevard & I-405 NB Off-Ramp/SR-22 EB Ramps	D	D
Garden Grove Boulevard & Bolsa Chica Road/Valley View Street	C	C
I-405 SB Ramps (to NB & SB Bolsa Chica Road) & Bolsa Chica Road	B	A
SR-22 WB/I-405 NB On-Ramp (for SB Valley View Street) & Valley View Street	--	--
SR-22 WB/I-405 NB On-Ramp (for NB Valley View Street) & Valley View Street	--	--
SEAL BEACH BOULEVARD INTERCHANGE		
I-405 NB Ramps & Seal Beach Boulevard	C	C
I-405 SB Ramps & Seal Beach Boulevard	D	D
BEAR STREET INTERCHANGE AT SR-73		
SR-73 NB Ramps & Bear Street	B	B
SR-73 SB Ramps & Bear Street	B	B
KATELLA AVENUE/WILLOW STREET INTERCHANGE AT I-605		
Katella Avenue & I-605 NB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 NB On-Ramp (for EB Katella Avenue)	A	A
Katella Avenue & I-605 NB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 NB Off-Ramp (to WB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 SB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for EB Katella Avenue)	--	--
Willow Street & I-605 SB Off-Ramp (to WB Willow Street)	--	--

Intersection LOS Summary – No Build Alternative (Year 2040)

Location	AM Peak Hour	PM Peak Hour
BRISTOL STREET INTERCHANGE		
Anton/South Coast Plaza & Bristol Street	B	D
I-405 NB Off-Ramp/South Coast Plaza & Bristol Street	C	D
I-405 NB On-Ramp (for NB Bristol Street) & Bristol Street	--	--
I-405 NB On-Ramp (for SB Bristol Street) & Bristol Street	--	--
I-405 SB On-Ramp (for SB Bristol Street) & Bristol Street	--	--
I-405 SB Off-Ramp & On-Ramp (for NB Bristol Street) & Bristol Street	B	F
FAIRVIEW ROAD INTERCHANGE		
I-405 NB Ramps & Fairview Road	F	D
I-405 SB Ramps & Fairview Road	C	C
South Coast Drive & I-405 NB Off-Ramp t	C	C
HARBOR BOULEVARD & HYLAND AVENUE INTERCHANGE		
I-405 NB On-Ramp/South Coast Drive & Hyland Avenue	A	B
I-405 SB On-Ramp (for SB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 NB Off-Ramp & Harbor Boulevard	C	C
I-405 NB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
I-405 SB Off-Ramp & Harbor Boulevard	B	B
I-405 SB On-Ramp (for NB Harbor Boulevard) & Harbor Boulevard	--	--
Gisler Avenue & Harbor Boulevard	C	E
Ikea Way & Susan Street	A	A
EUCLID STREET & ELLIS AVENUE INTERCHANGE		
I-405 NB Ramps/Newhope Street & Euclid Street	C	D
Ellis Avenue I-405 SB Ramps	F	F
BROOKHURST STREET & TALBERT AVENUE INTERCHANGE		
Slater Avenue & Brookhurst Street	F	E
I-405 NB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to NB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB On-Ramp (for NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to SB Brookhurst Street) & Brookhurst Street	--	--
Talbert Avenue & Brookhurst Street	F	F
Talbert Avenue & I-405 SB On-Ramp (for EB Talbert Avenue)	--	--
MAGNOLIA STREET & WARNER AVENUE INTERCHANGE		
Heil Avenue & Magnolia Street	C	C
I-405 NB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 NB Off-Ramp (to NB Magnolia Avenue) & Magnolia Street	--	--
I-405 NB On-Ramp (for NB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB On-Ramp (for SB Magnolia Avenue) & Magnolia Street	--	--
I-405 SB Off-Ramp (to NB & SB Magnolia Avenue) & Magnolia Street	B	C
Warner Avenue & Magnolia Street	E	F
Warner Avenue & I-405 SB On-Ramp (for EB Warner Avenue)	--	--
Warner Avenue & I-405 SB Off-Ramp (to EB Warner Avenue)	--	--
Warner Avenue & I-405 NB Off-Ramp (to WB Warner Avenue)	--	--
Warner Avenue & I-405 NB On-Ramp (for WB Warner Avenue)	--	--

Location	AM Peak Hour	PM Peak Hour
BEACH BOULEVARD & EDINGER AVENUE INTERCHANGE		
McFadden Avenue & Beach Boulevard	F	F
I-405 NB On-Ramp (for SB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB Off-Ramp (to NB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB Off-Ramp (to SB Beach Boulevard) & Beach Boulevard	--	--
I-405 NB On-Ramp (for NB Beach Boulevard) & Beach Boulevard	--	--
Center Avenue & Beach Boulevard	B	F
Center Avenue (Huntington Beach Mall) & I-405 SB Ramps	B	D
I-405 SB Off-Ramp (to NB Beach Boulevard) & Beach Boulevard	--	--
Edinger Avenue & Beach Boulevard	F	F
Edinger Avenue & I-405 SB On-Ramp	--	--
GOLDENWEST STREET & BOLSA AVENUE INTERCHANGE		
I-405 NB On-Ramp (for NB Goldenwest Street) & Goldenwest Street	--	--
Westminster Mall & I-405 SB Ramps	A	B
Westminster Mall & Goldenwest Street	B	B
Bolsa Avenue & Goldenwest Street	D	F
Bolsa Avenue & I-405 SB On-Ramp (for EB Bolsa Avenue)	--	--
Bolsa Avenue & I-405 SB Off-Ramp (to EB Bolsa Avenue)	B	B
Bolsa Avenue & I-405 NB Off-Ramp (to WB Bolsa Avenue)	--	--
SPRINGDALE STREET & WESTMINSTER BOULEVARD INTERCHANGE		
I-405 SB Off-Ramp & Springdale Street	F	F
Westminster Boulevard & Springdale Street	D	F
Westminster Boulevard & I-405 SB On-Ramp	--	--
Westminster Boulevard & I-405 SB Off-Ramp (to EB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB Off-Ramp (to WB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB On-Ramp	--	--
Westminster Boulevard & I-405 NB Off-Ramp/Willow Lane	B	B
BOLSA CHICA ROAD – VALLEY VIEW STREET & GARDEN GROVE BOULEVARD INTERCHANGE		
Garden Grove Boulevard & I-405 NB Off-Ramp/SR-22 EB Ramps	E	F
Garden Grove Boulevard & Bolsa Chica Rd/Valley View Street	C	F
I-405 SB On-Ramp (for SB Bolsa Chica Rd) & Bolsa Chica Rd	--	--
I-405 SB Off-Ramp (to SB Bolsa Chica Rd) & Bolsa Chica Rd	--	--
SR-22 WB/I-405 NB On-Ramp (for SB Valley View St) & Valley View Street	--	--
SR-22 WB/I-405 NB On-Ramp (for NB Valley View St) & Valley View Street	--	--
SEAL BEACH BOULEVARD INTERCHANGE		
I-405 NB Ramps & Seal Beach Boulevard	C	D
I-405 SB Ramps & Seal Beach Boulevard	F	F
BEAR STREET INTERCHANGE AT SR-73		
SR-73 NB Ramps & Bear Street	B	B
SR-73 SB Ramps & Bear Street	B	B
KATELLA AVENUE/WILLOW STREET INTERCHANGE AT I-605		
Katella Avenue & I-605 NB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 NB On-Ramp (for EB Katella Avenue)	A	A
Katella Avenue & I-605 NB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 NB Off-Ramp (to WB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 SB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for EB Katella Avenue)	--	--
Willow Street & I-605 SB Off-Ramp (to WB Willow St)	--	--

Intersection LOS Summary –Build Alternative (Year 2040)

Location	AM Peak Hour	PM Peak Hour
EUCLID STREET & ELLIS AVENUE INTERCHANGE		
I-405 NB Ramps/Newhope St & Euclid Street	C	D
Ellis Avenue (WB to SB On-Ramp) & I-405 SB Ramps (I-405 SB On-Ramp is for WB Ellis Avenue)	C	B
Ellis Avenue (EB to SB On-Ramp) & I-405 SB On-Ramp (for EB Ellis Avenue)	--	--
Ellis Avenue & Pacific Street		
BROOKHURST STREET & TALBERT AVENUE INTERCHANGE		
Slater Avenue & Brookhurst Street	F	D
I-405 NB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 NB Off-Ramp (to NB & SB Brookhurst Street) & Brookhurst Street	B	B
I-405 NB On-Ramp (for NB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB On-Ramp (for SB Brookhurst Street) & Brookhurst Street	--	--
I-405 SB Off-Ramp (to NB & SB Brookhurst Street) & Brookhurst Street	B	B
Talbert Avenue & Brookhurst Street	F	F
Talbert Avenue & I-405 SB On-Ramp (for EB Talbert Avenue)	--	--
MAGNOLIA STREET & WARNER AVENUE INTERCHANGE		
Heil Avenue & Magnolia Street	C	C
I-405 NB On-Ramp (for SB Magnolia Street) & Magnolia Street	--	--
I-405 NB Off-Ramp (to NB Magnolia Street) & Magnolia Street	A	A
I-405 NB On-Ramp (for NB Magnolia Street) & Magnolia Street	--	--
I-405 SB On-Ramp (for SB Magnolia Street) & Magnolia Street	--	--
I-405 SB Off-Ramp (to NB & SB Magnolia Street) & Magnolia Street	B	B
Warner Avenue & Magnolia Street	D	F
Warner Avenue & I-405 SB On-Ramp (for EB Warner Avenue)	--	--
Warner Avenue & I-405 SB Off-Ramp (to EB Warner Avenue)	--	--
Warner Avenue & I-405 NB Off-Ramp (to WB Warner Avenue)	--	--
Warner Avenue & I-405 NB On-Ramp (for WB Warner Avenue)	--	--
BEACH BOULEVARD & EDINGER AVENUE INTERCHANGE		
McFadden Avenue & Beach Boulevard	F	F
I-405 NB Ramps (for NB and SB Beach Boulevard) & Beach Boulevard	B	B
Center Avenue & Beach Boulevard	B	C
Center Avenue (Huntington Beach Mall) & I-405 SB Ramps	B	C
Edinger Avenue & Beach Boulevard	F	F
Edinger Avenue & I-405 SB On-Ramp	--	--
GOLDENWEST STREET & BOLSA AVENUE INTERCHANGE		
I-405 NB On-Ramp (for NB Goldenwest Street) & Goldenwest Street	--	--
Westminster Mall & I-405 SB Ramps	B	B
Westminster Mall & Goldenwest Street	B	A
Bolsa Avenue & Goldenwest Street	D	E
Bolsa Avenue & I-405 SB On-Ramp (for EB Bolsa Avenue)	--	--
Bolsa Avenue & I-405 SB Off-Ramp (to EB Bolsa Avenue)	B	B
Bolsa Avenue & I-405 NB Off-Ramp (to WB Bolsa Avenue)	--	--
Option B		
Westminster Mall & I-405 SB Ramps	--	--
SPRINGDALE STREET & WESTMINSTER BOULEVARD INTERCHANGE		
I-405 SB Off-Ramp & Springdale Street	A	A
Westminster Boulevard & Springdale Street	D	F
Westminster Boulevard & I-405 SB On-Ramp	--	--
Westminster Boulevard & I-405 SB Off-Ramp (to EB Westminster Boulevard)	--	--

Location	AM Peak Hour	PM Peak Hour
Option A		
Westminster Boulevard & I-405 NB Ramps (to WB & EB Westminster Boulevard)	C	B
Westminster Boulevard & Willow Lane	B	B
Option B		
Westminster Boulevard & I-405 NB Off-Ramp (to WB Westminster Boulevard)	--	--
Westminster Boulevard & I-405 NB On-Ramp	--	--
Westminster Boulevard & I-405 NB Off-Ramp/Willow Lane	--	--
BOLSA CHICA ROAD – VALLEY VIEW STREET & GARDEN GROVE BOULEVARD INTERCHANGE		
Garden Grove Boulevard & I-405 NB Off-Ramp/SR-22 EB Ramps	D	D
Garden Grove Boulevard & Bolsa Chica Road /Valley View Street	C	F
I-405 SB Ramps (to NB & SB Bolsa Chica Road) & Bolsa Chica Road	B	B
SR-22 WB/I-405 NB On-Ramp (for SB Valley View Street) & Valley View Street	--	--
SR-22 WB/I-405 NB On-Ramp (for NB Valley View Street) & Valley View Street	--	--
SEAL BEACH BOULEVARD INTERCHANGE		
I-405 NB Ramps & Seal Beach Boulevard	C	C
I-405 SB Ramps & Seal Beach Boulevard	D	F
BEAR STREET INTERCHANGE AT SR-73		
SR-73 NB Ramps & Bear Street	--	--
SR-73 SB Ramps & Bear Street	--	--
KATELLA AVENUE/WILLOW STREET INTERCHANGE AT I-605		
Katella Avenue & I-605 NB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 NB On-Ramp (for EB Katella Avenue)	A	A
Katella Avenue & I-605 NB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 NB Off-Ramp (to WB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for WB Katella Avenue)	--	--
Katella Avenue & I-605 SB Off-Ramp (to EB Katella Avenue)	--	--
Katella Avenue & I-605 SB On-Ramp (for EB Katella Avenue)	--	--
Willow Street & I-605 SB Off-Ramp (to WB Willow Street)	--	--

Appendix D. PM Interagency Consultation

The interagency consultation (IAC) process is an important tool for completing project-level conformity determinations and hot-spot analyses. The project was presented to the SCAG Transportation Conformity Working Group on January 25, 2011. IAC determined at this meeting that the project is a POAQC for PM10 and/or PM2.5 hot spot analysis based on 40 CFR 93.116 and 93.123, and EPA's Hot Spot Guidance. Evidence that the IAC concurred with this conclusion is provided on the following page.

TCWG CONFORMITY DETERMINATION

October 2014

TCWG Review of Qualitative Analyses

Qualitative PM Hot Spot Analysis Review

October, 2014	Determination
ORA030605 October 2014 calculations ORA030605 October 2014 rev ORA030605 October 2014 revSummary ORA030605 October 2014 revTrackChange ORA030605 October 2014	Analysis deemed acceptable for NEPA circulation

PROGRAMS & PROJECTS
Compass Blueprint
Clean Cities
Environment
Air Quality
Energy
Environmental Impact Reports
Environmental Justice
Intergovernmental Review
Solid & Hazardous Waste Management
Water
Housing
Local Profiles
Overall Work Program
Regional Comprehensive Plan
Federal Transportation Improvement Program
Regional Transportation Plan
SB 375 Regional Implementation Process
State of the Region
Strategic Plan
Transportation
REGIONAL COUNCIL
Districts & Representatives
Executive Officers
Governing Structure
LEGISLATION
State & Federal Programs
Find Your Representative
DATA SERVICES
Demographics, Trends & Statistics
Emergency Information Network
Goods Movement Database
Integrated Growth Forecast
Mapping & GIS
Modeling
MEDIA & COMMUNICATIONS
Press Room
Publications & Reports
SCAG-TV Streaming Videos
SALARY & BENEFITS
SCAG Employee Compensation

TCWG Project-Level PM Hot Spot Analysis Project Lists

Review of PM Hot Spot Interagency Review Forms

January 2011	Determination
LA0G230	Not a POAQC - Hot Spot analysis not required
ORA001105	Not a POAQC - Hot Spot analysis not required
ORA030605	POAQC - Requires Qualitative Hot Spot Analysis
SBD_20040210 SBD_20040210_Figure 1-1 SBD_20040210_Figure 1-2 SBD_20040210_Figure 1-3 (Part1) SBD_20040210_Figure 1-3 (Part2) SBD_20040210_Figure 1-3 (Part3)	Not a POAQC - Hot Spot analysis not required

RTIP ID# *(required)* ORA030605

TCWG Consideration Date December 2010

Project Description *(clearly describe project)*
The I-405 Improvement Project is located in Orange County on Route I-405 between SR-73 (PM 10.3) and I-605 (PM 24.1). The project covers a distance of approximately 14 miles. Within the limits of the proposed project, I-405 is a controlled-access highway facility with a fenced right-of-way (ROW), separated by grade from crossing traffic, with vehicular access limited to interchanges. Within the project area, I-405 consists of 8 to 12 mixed-flow general purpose (GP) lanes and two high-occupancy vehicle (HOV) lanes. The purposes of the project can be defined as follows:

- Add capacity and reduce congestion on the GP and HOV lanes along the entire I-405 corridor from SR-73 to I-605;
- Enhance interchange operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations;
- Implement strategies that ensure the earliest project delivery; and
- Enhance safety.

COMMON DESIGN FEATURES OF THE BUILD ALTERNATIVES

Build Alternatives 1, 2, and 3 would include the following features:

- One GP lane would be added in each direction of I-405 from Euclid Street to the I-605 interchange.

- Travel lanes on the I-405 mainline would be 12 feet wide, and right side shoulders would be 10 feet wide.

- Due to the added travel lanes and shoulder widths proposed on the I-405 mainline, 16 local street overcrossings and a pedestrian bridge over I-405 within the project limits would require complete replacement because the existing bridge spans are inadequate to accommodate the additional proposed width of the freeway underneath the bridges. Each of the replacement (new) local street overcrossings would be designed to accommodate the ultimate cross-section width and maximum number of travel lanes planned for each facility by the Orange County Master Plan of Arterial Highways (MPAH).

- The Euclid Street/Ellis Avenue undercrossing bridge would be modified and extended as part of the proposed project.

- Two railroad overheads would be modified and extended as part of the proposed project. The freeway passes over the Union Pacific Railroad (UPRR) on the Bolsa Overhead (Bridge No. 55-269 at PM 17.21) and the U.S. Navy Railroad on the Navy Overhead (Bridge No. 55-272 at PM 18.36). Both railroad overheads would be widened, required railroad clearances would be maintained, and a crash cushion would be installed at the UPRR overhead.

- Improvements at each interchange within the project limits are proposed. Generally, each interchange improvement would have the following standard features:
  - Left- and right-side shoulders on on-/off-ramps;
  - Increased on-ramp storage capacity for ramp meters;
  - Removal of HOV bypass lanes from on-ramps, subject to individual analysis of each on-ramp and approval by the Department and Federal Highway Administration (FHWA);

  - Increased off-ramp storage capacity at local street intersections; and
  - Additional through and turn lanes at intersections of ramps and local streets.

- Each build alternative would include interchange reconfigurations at Euclid Street, Ellis Avenue, Brookhurst Street, Magnolia Street, Warner Avenue, Beach Boulevard, and Westminster Boulevard.

- The build alternatives would provide appropriate pedestrian facilities on overcrossings and along arterials within interchanges.

- Maintenance vehicle pullouts (MVP) would be included in various locations under each build alternative.

- Each build alternative would require relocation of existing utilities (e.g., electrical lines, irrigation water supply lines, underground natural gas pipelines, telecommunication lines) currently present within the I-405 ROW limits.

- The build alternatives would require modification of existing stormwater drainage channels and construction of new drainage and/or retention facilities necessary to accommodate project construction and provide sufficient drainage capacity to accommodate future runoff volumes generated with the built project in place.

- Each build alternative would add water quality Best Management Practices (BMPs).

- At various locations, new or reconstructed soundwalls and retaining walls would be constructed. Replacement walls would be constructed in areas where sections of existing walls must be modified to accommodate the proposed project.

- Landscaping and hardscaping elements would be included with each build alternative.

- Due to ROW constraints and existing non-standard features, design exceptions are being requested as a part of the proposed project. Examples of such design exceptions include the following:
  - Non-standard superelevation rates: approve new grades for ramps;
  - Lengths of transitions on ramps: approve either shortened or tightened ramps;
  - Non-standard longitudinal grades at existing tie-ins: approve the ramps into mainline to match the mainline grade; and
  - Access control: approve spacing from ramp off and on to existing driveways for businesses.

- Although TSM and TDM measures alone do not satisfy the purpose and need of the project, the following TSM and TDM measures may be incorporated into each of the build alternatives for the proposed project:
  - Real Time Adaptive Ramp Metering (RTARM) and camera systems would be provided on on-ramps;
  - At locations of interchange improvements, traffic signals would be interconnected and coordinated, where possible, to enhance traffic operations;
  - Pedestrians improvements would be added wherever possible;
  - Additional Park & Ride/ Intermodal facilities would be added at various locations to integrate with Bus Rapid Transit (BRT), express bus, Go Local Metrolink Connectors, community circulators, and local bus;
  - At all existing locations, Park & Ride facilities would be improved, including adding way-finding signs on freeways and arterials, information kiosks, and improved safety features;
  - Auxiliary lanes would be provided in various locations;

- On- and off-ramps would be designed to limit impacts to non-motorized travel, preserving access to bike lanes and trails such as the Santa Ana River bike trail; and
- Intelligent transportation systems (ITS) elements, where needed and feasible, would be provided, including the following: fiber-optic communication systems, changeable message signs, and vehicle detection systems.

UNIQUE FEATURES OF BUILD ALTERNATIVES

Alternative 1 – Add One GP Lane in Each Direction

Alternative 1 would add a single GP lane in each direction of I-405 from Euclid Street to the I-605 interchange. It would provide a full standard highway cross section, with 12-foot-wide mainline travel lanes as well as 10-foot-wide shoulders on both left (inside) and right (outside) sides in both directions.

Alternative 1 would provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved a separate project to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access would be implemented as part of Alternative 1 of the proposed project for the segment of I-405 between Euclid Street and I-605.

Under Alternative 1, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. The existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. Additional northbound auxiliary lanes would be provided between ramps at the following locations:

- From the southbound Harbor Boulevard/Hyland Street/westbound South Coast Drive on-ramp to the Euclid Street/Ellis Avenue off-ramp; and
- From the Seal Beach Boulevard on-ramp to the westbound SR-22/7th Street off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. A southbound auxiliary lane would be provided from the Goldenwest Street/Bolsa Avenue collector-distributor (C-D) road on-ramp to the Beach Boulevard/Center Avenue off-ramp.

In the northern segment of the project area where SR-22 and I-405 overlap, Alternative 1 would result in a freeway with nine through lanes in each direction. For traffic in the left lanes, including the HOV lanes, signage would be provided far enough upstream to accommodate the required number of lane changes to properly exit the freeway.

Alternative 1 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Provision of additional capacity in the form of a continuous additional lane through the entire project area;
- Provision of operational improvements via redesign of interchanges and provision of additional auxiliary lanes;
- Addition of substantial vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Reduction of congestion compared to future conditions under the No Build Alternative.

Alternative 2 – Add Two GP Lanes in Each Direction

Alternative 2 would add one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternative 1), plus add a second GP lane in the northbound direction from Brookhurst Street to the SR-22/7th Street interchange and a second GP lane in the southbound direction from the Seal Beach Boulevard on-ramp to Brookhurst Street.

Alternative 2 would provide a full standard highway cross section, with 12-foot-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders would be 10-foot-wide, while left side (inside) shoulders would have a maximum width of 10 feet with a provision for a widened left shoulder for HOV enforcement areas under consideration.

Alternative 2 would provide continuous access between the HOV and GP lanes. On July 31, 2007, the Department approved separate project to provide continuous ingress and egress from the HOV lanes on the entire length of I-405 in Orange County. This separate project has not yet been programmed or funded; however, the proposed continuous access would be implemented as part of Alternative 2 of the proposed project for the segment of I-405 between Euclid Street and I-605.

Under Alternative 2, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. In the northbound direction, the existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. A northbound auxiliary lane would be provided from the southbound Harbor Boulevard/Hyland Street/ westbound South Coast Drive on-ramp to the Euclid Street/Ellis Avenue off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. A southbound auxiliary lane would be provided from the Goldenwest Street/Bolsa Avenue C-D road on-ramp to the Beach Boulevard/Center Avenue off-ramp.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 2 would result in a freeway with 9-10 through lanes in each direction. Signage would be provided far enough upstream to accommodate the required number of lane changes to exit the freeway for traffic in the left lanes, including the HOV lanes.

Alternative 2 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Enhancement of capacity in the form of two continuous additional lanes through the project area;
- Improvement of highway operations via redesign of interchanges and addition of new auxiliary lanes;
- Addition of substantial vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Relief of congestion compared to future conditions under the No Build Alternative.

Alternative 3 – Express Facility

Alternative 3 would add one GP lane in each direction of I-405 from Euclid Street to the I-605 interchange (as in Alternatives 1 and 2), plus add a tolled express lane in each direction of I-405 from SR-73 to I-605. The tolled express lane would be placed beside the existing HOV lane in each direction. The existing HOV lanes and new toll lanes would be managed jointly as an Express Lane Facility with two lanes in each direction.

Operation of the Express Lane Facility would provide preferential toll treatment for HOVs. All vehicles in the express lanes, tolled or free, would be able to use both lanes of the Express Lane Facility. Tolls for use of the Express Lane Facility would be collected exclusively by electronic media. Signing related to the Express Lane Facility would provide both toll and access information to motorists before entering each segment of the Express Lane Facility.

Alternative 3 would provide a full standard highway cross section, with 12-foot-wide mainline travel lanes and shoulders on the left and right sides in both directions. Right side (outside) shoulders would be 10-foot-wide, while left side (inside) shoulders would have a maximum width of 10 feet with a provision for a widened left shoulder for enforcement areas under consideration. The joint HOV/toll lane Express Lane Facility would be separated from the GP lanes by a 1-to-4 foot buffer.

Under Alternative 3, auxiliary lanes would be added at various locations to provide efficient merge and diverge operations. The existing auxiliary lane from the Magnolia Street on-ramp to the Beach Boulevard off-ramp would be retained. Additional northbound auxiliary lanes would be provided between ramps at the following locations:

- From the southbound Harbor Boulevard/Hyland Street/westbound South Coast Drive on-ramp to the Euclid Street/Ellis Avenue off-ramp;
- From the Magnolia Street on-ramp to the Beach Boulevard off-ramp; and
- From the Seal Beach Boulevard on-ramp to the westbound SR-22/7th Street off-ramp.

In the southbound direction, the existing auxiliary lane from the Beach Boulevard on-ramp to the Magnolia Street off-ramp would not be retained. Southbound additional auxiliary lanes would be provided between ramps at the following locations:

- From the Goldenwest Street/Bolsa Avenue C-D road on-ramp to the Beach Boulevard/Center Avenue off-ramp; and
- From the southbound Euclid Street on-ramp to the Harbor Boulevard off-ramp, the southern portion of which currently exists.

To accommodate the Express Lane Facility on I-405, there would be transition areas at both ends of the project to match the existing HOV and GP lane designations north and south of the project limits. Transition areas would include portions of I-605 and SR-73, as well as portions of I-405 north of I-605 and south of SR-73. A transition area would also be required on SR-22 east of I 405.

To facilitate access to the Express Lane Facility, the following seven access points are currently under consideration:

1. I-405 south of the SR-73 junction, by an at-grade access;
2. SR-73, by either an at-grade access or a direct connector;
3. I-405 in the Brookhurst Street/Magnolia Street area, by an at-grade access;
4. I-405 in the Goldenwest Street/Westminster Boulevard area, by an at-grade access;
5. SR-22 east of the I-405 junction, by a direct connector;
6. I-605 north of the I-405 junction, by a direct connector; and
7. I-405 north of the I-605 junction, by at-grade access.

At the Brookhurst Street/Magnolia Street and Goldenwest Street/Westminster Boulevard access locations, access to the Express Lane Facility would be at-grade and similar to ingress/egress treatments used on at-grade buffer-separated HOV facilities.

Access to the Express Lane Facility from SR-22 and I-605 would be via the HOV direct connectors to be constructed as part of the SR-22 WCC Project. Under Alternative 3, the WCC Project HOV direct connectors would become part of the I-405 Express Lane Facility, and use of the HOV lane direct connectors would become tolled for vehicles not meeting the HOV occupancy requirement.

In the northern section of the project area where SR-22 and I-405 overlap, Alternative 3 would result in a freeway with nine through lanes in each direction. For traffic in the left lanes, including the HOV lanes, to properly exit the freeway, signage would be provided far enough upstream to accommodate the required number of lane changes to exit the freeway.

Alternative 3 is considered a viable project alternative because it would achieve the project's purpose and need by accomplishing the following:

- Addition of capacity in the form of two new continuous lanes through the project area;
- Provision of operational improvements through redesign of interchanges and addition of auxiliary lanes;
- Addition of considerable vehicle storage at ramp meters through the proposed interchange reconfigurations; and
- Reduction of congestion compared to future conditions under the No Build Alternative.

No Build (No Action) Alternative

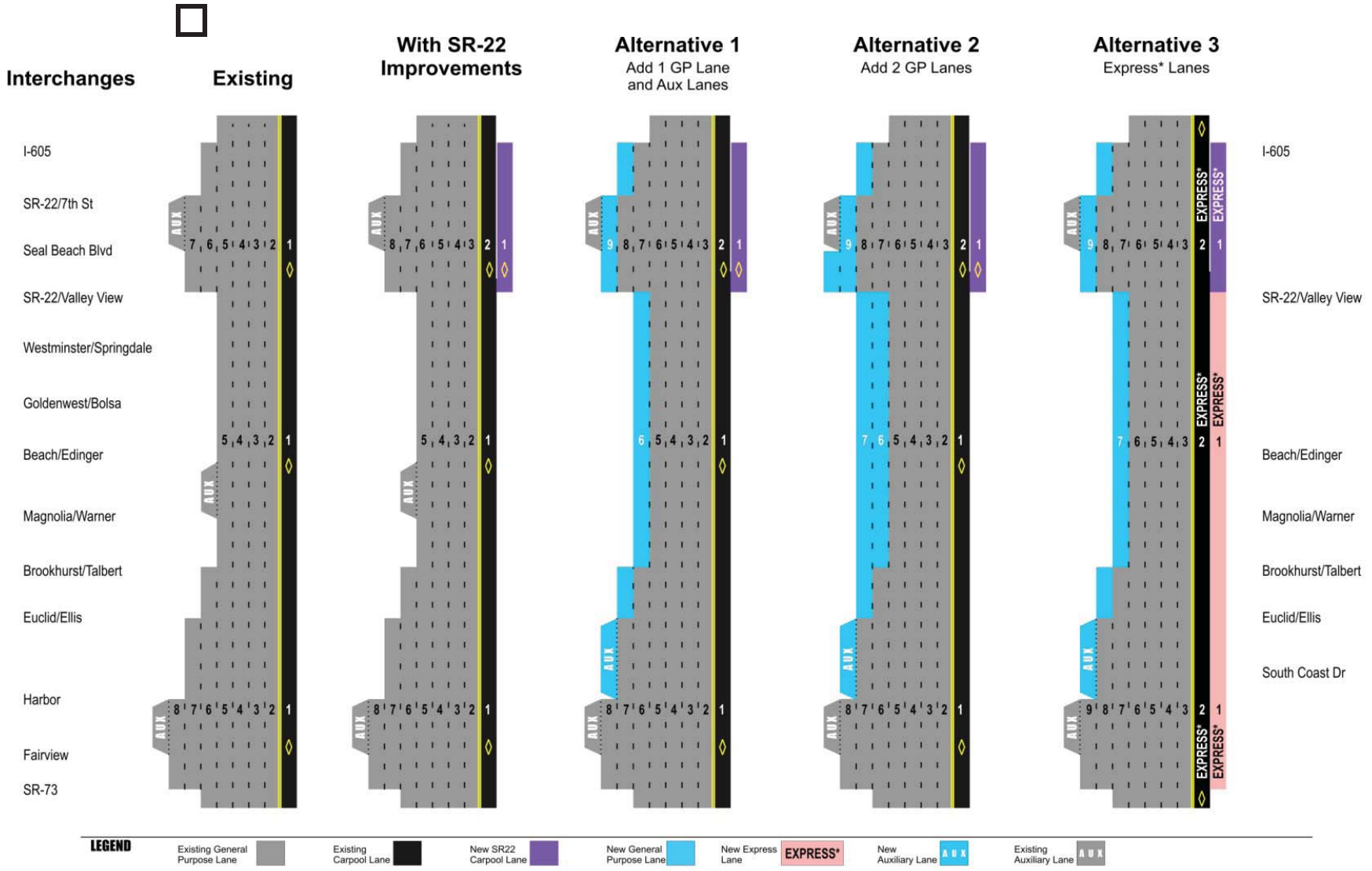
The No Build Alternative provides a "baseline" for comparing impacts associated with the build alternatives because environmental review must consider the effects of not implementing the proposed project. The Project Baseline conditions under the No Build Alternative would provide no additional lanes or interchange improvements to the I-405 corridor. The project area would continue to operate with no additional improvements and would not achieve the project's stated purpose and need

Compared to the existing condition, the future Project Baseline assumed under the No Build Alternative includes the future completion of the following two projects:

- The SR-22 WCC Project (currently in the construction phase), which has received environmental document approval and is proceeding through the design and construction phases; and
- The Costa Mesa Freeway (SR-55) Improvements, which would add new lanes to SR-55 between SR-22 on the north and I-405 on the south and improvements on SR-55 between SR-91 on the north and SR-22 on the south.

The following improvements in the project area are to be constructed by the SR-22 WCC Project and are considered part of the future Project Baseline conditions:

- An additional HOV lane in each direction between SR-22 East and I-605;
- HOV lane direct connectors at the I-405/SR-22 East and I-405/I-605 interchanges;
- Relocation of the existing off-ramp to southbound Bolsa Chica Road, which currently exits from the eastbound SR-22 branch connector, to exit from the I-405 southbound mainline;
- Replacement of the Seal Beach Boulevard overcrossing;
- Replacement of the SR-22 bridge carrying westbound SR-22 over I-405 near 7th Street;
- Replacement of the SR-22 bridge carrying eastbound SR-22 over I-405 near Valley View Street;
- New bridge carrying the planned I-405/SR-22 HOV direct connectors over I-405 northbound; and
- New bridge carrying the planned I-405/I-605 HOV direct connector over I-405 northbound.


Interchanges
Existing
With SR-22 Improvements
Alternative 1
Add 1 GP Lane and Aux Lanes
Alternative 2
Add 2 GP Lanes
Alternative 3
Express* Lanes
I-605
SR-22/7th St
Seal Beach Blvd
SR-22/Valley View
Westminster/Springdale
Goldenwest/Bolsa
Beach/Edinger
Magnolia/Warner
Brookhurst/Talbert
Euclid/Ellis
Harbor
Fairview
SR-73
South Coast Dr
AUX
EXPRESS*
LEGEND
Existing General Purpose Lane
Existing Carpool Lane
New SR22 Carpool Lane
New General Purpose Lane
New Express Lane
New Auxiliary Lane
Existing Auxiliary Lane

Type of Project *(use Table 1 on instruction sheet)*
Change to Existing State Highway
Reconfigure Existing Interchange

County	**Narrative Location/Route & Postmiles**
Orange	The I-405 Improvement Project is located in Orange County on Route I-405 between SR-73 (PM 10.3) and I-605 (PM 24.1). I-405 is considered a bypass route to the Interstate 5 (I-5) Santa Ana/Golden State Freeway through Orange County and an important component of the County's transportation system. I-405 is a controlled access facility with a fenced ROW separated by grade from crossing traffic, with vehicular access limited to interchanges. Within the project area, I-405 crosses (or is adjacent to) residential, commercial, recreational, and industrial urbanized uses that have developed directly up to the Caltrans ROW boundary. **Caltrans Projects – EA# OH1000**

Lead Agency: California Department of Transportation

Contact Person	**Phone#**	**Email**	**Fax**
Reza Aurasteh	(949) 724-2738	reza_aurasteh@dot.ca.	(949) 724-2256

Hot Spot Pollutant of Concern *(check one or both)* **PM2.5** X **PM10** X

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

Categorical Exclusion (NEPA)		**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**
	X				

Scheduled Date of Federal Action: December 2012

NEPA Delegation – Project Type *(check appropriate box)*

Exempt	**Section 6004 – Categorical Exemption**		**Section 6005 – Non-Categorical Exemption**
		X	

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	Mar 2009	Jan 2013	July 2014	Mar 2018
End	Dec 2012	Mar 2017	July 2017	Mar 2023

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*
The purposes of the project can be defined as follows:

- Add capacity and reduce congestion on the GP and HOV lanes along the entire I-405 corridor from SR-73 to I-605;
- Enhance interchange operations;
- Increase mobility, improve trip reliability, maximize throughput, and optimize operations;
- Implement strategies that ensure the earliest project delivery; and
- Enhance safety.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*
I-405 provides access between cities in Orange and Los Angeles Counties. It is used for commuting and inter-regional travel, along with direct and indirect access to employment centers, recreational attractions, shopping malls, medical centers, universities, airports, and other land uses. A segment of the freeway in the northern portion of the project area is one of the heaviest travelled in the nation.

Residential land uses generally border the project site throughout the length of the corridor. Other nearby land uses include parks, agriculture, schools, malls, and commercial buildings. Diesel traffic on the I-405 is generally related to commercial land uses in the project area. Additional heavy-duty truck trips are related to industrial land uses, including the Ports of Los Angeles and Long Beach and refineries.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Table 1: AADT - Opening Year (2020)

Study Segment	No Build			Build		
	Total AADT	Truck AADT	Truck %	Total AADT	Truck AADT	Truck %
SR-22 East to I-605	408,000	12,240	3	454,000	13,620	3
Brookhurst to SR-22 East	279,000	9,765	3.5	310,000	10,850	3.5
SR-73 to Brookhurst	338,000	11,830	3.5	375,000	13,125	3.5

Table 2: Peak Hour LOS - Opening Year (2020)

Study Segment	No Build				Build			
	AM		PM		AM		PM	
	NB	SB	NB	SB	NB	SB	NB	SB
SR-22 East to I-605	F	F	F	F	D	F	E	D
Brookhurst to SR-22 East	F	F	F	F	D	D	E	E
SR-73 to Brookhurst	F	F	F	F	E	E	E	E

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Table 3: AADT - Horizon Year (2040)

Study Segment	No Build			Build		
	Total AADT	Truck AADT	Truck %	Total AADT	Truck AADT	Truck %
SR-22 East to I-605	434,000	13,020	3	509,000	15,270	3
Brookhurst to SR-22 East	294,000	10,290	3.5	344,000	12,040	3.5
SR-73 to Brookhurst	358,000	12,530	3.5	419,000	14,665	3.5

Table 4: Peak Hour LOS - Horizon Year (2040)								
Study Segment	No Build				Build			
	AM		PM		AM		PM	
	NB	SB	NB	SB	NB	SB	NB	SB
SR-22 East to I-605	F	F	F	F	E	F	F	E
Brookhurst to SR-22 East	F	F	F	F	F	F	F	F
SR-73 to Brookhurst	F	F	F	F	F	F	F	F

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
Refer to attached sheet.

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
Refer to attached sheet.

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*
Table 1 shows Opening Year (2020) AADT and LOS on I-405 under the No-Build and Build Alternatives. The AADT and LOS for each build alternative are similar and are represented by one data set. The build alternatives would increase total and truck AADT by approximately 10% along the I-405 alignment. The truck percentage would be identical to No Build conditions at 3 to 3.5%. As shown in Table 2, the increased capacity would improve the AM and PM LOS despite the increased AADT.

Table 3 shows Horizon Year (2040) AADT and LOS on I-405 under the No-Build and Build Alternatives. The build alternatives would increase total and truck AADT by approximately 15 percent along the I-405 alignment. The truck percentage would be identical to No Build conditions at 3 to 3.5%. As shown in Table 4, the northbound AM and southbound PM LOS would improve from F to E along the SR-22 East to I-605 segment. The other segments would continue to operate at LOS F.

During the opening year, the I-405 project may redistribute carpool and transit traffic from local streets onto the I-405 corridor. Most users of express lanes will likely commute between Orange County and Los Angeles County and will not be diverted to local streets.

Comments/Explanation/Details *(attach additional sheets as necessary)*
The EPA Transportation Conformity Guidance includes the following relevant direction regarding Projects of Air Quality Concern (POAQC):

1. New or expanded highway projects that have a significant number or significant increase in diesel vehicles (defined as greater than 125,000 AADT **and** 8% or more such AADT is diesel truck traffic); and

2. Projects affecting intersections that are at a Level of Service D, E, F with a significant number of diesel vehicles, or that will change to Level of Service D, E, F because of increased traffic volumes from a significant number of diesel vehicles related to the project.

As shown in Tables 1 and 3, I-405 AADT would exceed the FHWA POAQC criterion of 125,000 but truck percentages would be less than half of the 8% threshold. In addition, the proposed project would not increase diesel vehicle percentages at any intersection and would not make the LOS worse at related intersections. Under the EPA guidance, the proposed project would not be a POAQC. It is also noteworthy that a regional criteria pollutant analysis has shown that regional PM emissions would be reduced by approximately 17% in 2020 and 26% in 2040 due to improved vehicle speeds resulting from implementation of the proposed project. The improved speeds would also reduce vehicle idling and associated localized emissions.

Because the proposed project is not considered a POAQC, the CAA and 40 CFR 93.116 requirements were met without a hot-spot analysis, since the build alternatives have been found to not be of air quality concern under 40 CFR 93.123(b)(1); therefore, implementation of the proposed project is not anticipated to contribute to additional exceedances of the NAAQS or CAAQS.

Table A: Arterial Average Daily Traffic: I-405 Freeway Interchanges

		---- TOTAL VEHICLES ----			TRUCK PERCENTAGE	--------- TRUCKS ---------		
Arterial	Segment Limits	Existing Year (2009)	Project Opening Year (2020)	Project Design Year (2040)	All Years	Existing Year (2009)	Project Opening Year (2020)	Project Design Year (2040)
Fairview Road Interchange at I-405								
Fairview Road	MacArthur Boulevard to South Coast Drive	40,480	53,070	61,420	1%	405	531	614
	South Coast Drive to I-405 SB Ramps	51,780	57,490	61,280	1%	518	575	613
	I-405 SB Ramps to Baker Street	46,660	48,360	49,490	1%	467	484	495
Harbor Boulevard & Hyland Avenue Interchange at I-405								
South Coast Drive	I-405 NB On-Ramp to Harbor Boulevard	9,990	13,440	15,730	1%	100	134	157
Harbor Boulevard	South Coast Drive to I-405 NB Ramps	56,550	64,620	69,960	1%	566	646	700
	I-405 NB Ramps to I-405 SB Ramps	44,470	56,910	65,150	1%	445	569	652
	I-405 SB Ramps to Gisler Avenue	69,580	72,120	73,790	1%	696	721	738
Euclid Street/Ellis Avenue Interchange at I-405								
Euclid Street/Ellis Avenue	Talbert Avenue to I-405 NB Ramps/Newhope Street	20,630	33,590	42,170	1%	206	336	422
	I-405 NB Ramps/Newhope Street to I-405 SB Ramps	28,960	38,150	44,230	1%	290	382	442
	I-405 SB Ramps to Ward Street	29,140	35,870	40,320	1%	291	359	403
Brookhurst Street & Talbert Avenue Interchange at I-405								
Brookhurst Street	Slater Avenue to I-405 NB Ramps	52,140	57,560	61,150	1%	521	576	612
	I-405 NB Ramps to I-405 SB Ramps	55,100	59,260	62,020	1%	551	593	620
	I-405 SB Ramps to Talbert Avenue	51,760	55,940	58,700	1%	518	559	587
Talbert Avenue	Bushard Street to Brookhurst Street	27,140	31,410	34,240	1%	271	314	342
	Brookhurst Street to Ward Street	19,870	24,340	27,300	1%	199	243	273
Magnolia Street & Warner Avenue Interchange at I-405								
Magnolia Street	Heil Avenue to I-405 NB On-Ramp	37,740	41,240	43,550	1%	377	412	436
	I-405 NB On-Ramp to I-405 SB Ramps	34,450	38,310	40,860	1%	345	383	409
	I-405 SB Ramps to Warner Avenue	33,950	35,840	37,090	1%	340	358	371
Warner Avenue	Magnolia Street to I-405 SB Ramps	44,170	45,770	46,840	1%	442	458	468
	I-405 SB Ramps to I-405 NB Ramps	38,570	40,610	41,970	1%	386	406	420
	I-405 NB Ramps to Bushard Street	35,880	37,860	39,170	1%	359	379	392
Beach Boulevard & Edinger Avenue Interchange at I-405								
Beach Boulevard	McFadden Avenue to I-405 NB Ramps	66,330	79,230	87,780	2%	1,327	1,585	1,756
	I-405 NB Ramps to I-405 SB Ramps	75,100	87,130	95,090	2%	1,502	1,743	1,902
	I-405 SB Ramps to Edinger Avenue	73,240	88,790	99,090	2%	1,465	1,776	1,982
Edinger Avenue	Beach Boulevard to I-405 SB On-Ramp	31,120	32,370	33,200	1%	311	324	332
	I-405 SB On-Ramp to Newland Street	20,370	22,390	23,720	1%	204	224	237

Table A: Arterial Average Daily Traffic: I-405 Freeway Interchanges

		---- TOTAL VEHICLES ----			TRUCK PERCENTAGE	--------- TRUCKS ---------		
Arterial	**Segment Limits**	**Existing Year (2009)**	**Project Opening Year (2020)**	**Project Design Year (2040)**	**All Years**	**Existing Year (2009)**	**Project Opening Year (2020)**	**Project Design Year (2040)**
Goldenwest Street & Bolsa Avenue Interchange at I-405								
Goldenwest Street	Sowell Avenue to I-405 NB On-Ramp	28,130	35,100	39,720	1%	281	351	397
	I-405 NB On-Ramp to I-405 SB Ramps	40,570	44,380	46,900	1%	406	444	469
Bolsa Avenue	Goldenwest Street to I-405 SB Ramps	41,670	43,180	44,190	1%	417	432	442
	I-405 NB Ramps to Hoover Street	21,130	24,320	26,430	1%	211	243	264
Springdale Street & Westminster Boulevard Interchange at I-405								
Springdale Street	Meinhardt Road/Navajo Road to I-405 SB Off-Ramp	18,980	19,670	20,120	1%	190	197	201
	I-405 SB Off-Ramp to Westminster Boulevard	25,310	26,230	26,840	1%	253	262	268
Westminster Boulevard	Springdale Street to I-405 SB Ramps	41,180	43,110	44,380	1%	412	431	444
	I-405 NB Ramps to Edwards Street	30,400	34,240	36,790	1%	304	342	368
Bolsa Chica Road/Valley View Street & Garden Grove Boulevard Interchange at I-405								
Garden Grove Boulevard	Valley View Street to I-405 NB Off-Ramp/SR-22 EB Ramps	32,310	33,490	34,270	1%	323	335	343
Valley View Street	Cerulean Avenue to SR-22 WB & I-405 NB Ramps	55,610	57,630	58,980	1%	556	576	590
	SR-22 WB & I-405 NB Ramps to Garden Grove Boulevard	64,140	66,480	68,020	1%	641	665	680
Bolsa Chica Road	Garden Grove Boulevard to I-405 SB Ramps	49,950	57,920	63,190	1%	500	579	632
	I-405 SB Ramps to Old Bolsa Chica Road	47,810	57,820	64,460	1%	478	578	645
Seal Beach Boulevard Interchange at I-405								
Seal Beach Boulevard	Lampson Avenue to I-405 NB Ramps	46,970	57,120	63,850	1%	470	571	639
	I-405 NB Ramps to I-405 SB Ramps	44,500	54,130	60,520	1%	445	541	605
	I-405 SB Ramps to Westminster Avenue	31,950	42,990	50,310	1%	320	430	503

Appendix E. PM Qualitative Hot-Spot Analysis

Analysis Method

This project was determined to be a Project of Concern (POAQC) for localized particulate matter (PM10 and PM2.5), based on interagency consultation concluded on January 25, 2011. Project-level particulate matter (PM) analysis was started on January 26, 2011. Analysis follows the U.S. EPA Guidance of 2006. Analysis is based on comparison of Build alternative emissions with No Build to determine whether the project is likely to cause or worsen a localized violation of the particulate matter standards.

Summary Conclusion

The project will not cause, contribute to, or worsen an existing violation of the PM10 24-hour, PM2.5 annual, and PM2.5 24-hour standards. Based on emission analysis, the Build Alternative will produce PM10 and PM2.5 emissions that are lower than No Build, will not reduce LOS at an intersection with a substantial number of trucks to D or worse, and will not move emissions significantly closer to existing sensitive receptors. Therefore, the project is unlikely to cause or contribute to, or worsen existing, violations of the PM standards.

Planning Assumptions

Traffic volumes, fleet mix, and roadway link speeds were determined using traffic analysis developed for this project. Land use and regional travel modeling information, if used, were determined in consultation with the Orange County Transportation Authority. Emission models described below were used, with concurrence by interagency consultation.

The project is listed in the conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) as shown below for opening in the conformity analysis period. Analysis years described below (Roadway and Traffic Conditions section) were based on an open-to-traffic year consistent with the RTP, a horizon year based on the Design Year of the project or the horizon year of the RTP conformity analysis as needed to capture the year of likely highest emissions. The listed project descriptions state "I-405 from SR-73 to I-605 Add 1 MF lane in each direction, and additional capital improvements. Combined with ORA045, ORA151, ORA100507 and ORA120310." and “Add 1 MF lane in each direction, and additional capital improvements: Convert Existing HOV to HOT, add 1 additional HOT lane each direction” (RTP/FTIP ID ORA030605).

Roadway and Traffic Conditions

The hot-spot analysis was performed using peak and non-peak traffic volumes, truck volumes or percentage, and average speed for the entire project and, if identified, specific roadway links within the project were determined using traffic analysis developed for this project. The traffic analysis was compared to regional travel demand data, and any adjustments are explained in the traffic analysis report. Analysis was prepared for the following scenarios:

Analysis was prepared for the following scenarios:

- Open-to-traffic year (2020) without project;
- Open-to-traffic year (2020) with project;
- 20-year horizon year RTP horizon (2040) without project, and
- 20-year horizon year RTP horizon (2040) with project.

Traffic data is shown in Table A and B below. The truck percentage is 3.5%, 3.5%, and 3.0% for the segments of SR-73 to Brookhurst, Brookhurst to SR-22 East, and SR-22 East to I-605, respectively. Additional traffic data including vehicle speeds and LOS tables are included in Appendix E. In summary, the VMT weighted average speeds for the 2020 No Build and Build Alternatives are 37 and 57 miles per hour, respectively. The average speeds for the 2040 No Build and Build Alternatives are 25 and 45 miles per hour, respectively.

Table A: Traffic Data – Average Daily Volumes (2020 and 2040)

Scenario	Traffic Volumes					
	Northbound			Southbound		
	GP	HOV	TRUCK	GP	HOV	TRUCK
FUTURE (2020) – NO BUILD						
Morning Peak Period (6:00 AM- 9:00 AM)						
SR-73 to Brookhurst	43,461	5,550	1,576	48,090	6,712	1,744
Brookhurst to SR-22 East	34,470	6,602	1,250	30,606	6,363	1,110
SR-22 East to I-605	49,915	11,336	1,810	44,357	10,973	1,609
Subtotal by Lane	127,846	23,488	4,636	123,053	24,048	4,463
Subtotal by Time Period	307,534					
Evening Peak Period (3:00 PM - 7:00 PM)						
SR-73 to Brookhurst	65,261	8,261	2,367	58,775	7,532	2,132
Brookhurst to SR-22 East	49,762	9,448	1,805	43,842	8,427	1,590
SR-22 East to I-605	67,654	15,230	2,454	65,895	15,003	2,390
Subtotal by Lane	182,677	32,939	6,626	168,512	30,962	6,112
Subtotal by Time Period	427,828					
Non-Peak Periods						
SR-73 to Brookhurst	57,044	2,770	2,069	56,637	964	2,054
Brookhurst to SR-22 East	43,578	6,514	1,581	42,631	6,075	1,546
SR-22 East to I-605	54,968	15,879	1,994	65,039	12,534	2,359
Subtotal by Lane	155,590	25,163	5,644	164,307	19,573	5,959
Subtotal by Time Period	376,236					
Total by Lane	466,113	81,590	16,906	455,872	74,583	16,534
Total by Scenario	1,111,598					

Scenario	Traffic Volumes					
	Northbound			Southbound		
	GP	HOV	TRUCK	GP	HOV	TRUCK
FUTURE (2020) – ALTERNATIVE 3						
Morning Peak Period (6:00 AM - 9:00 AM)						
SR-73 to Brookhurst	40,088	8,132	1,454	49,683	8,974	1,802
Brookhurst to SR-22 East	34,697	7,572	1,258	32,037	8,413	1,162
SR-22 East to I-605	52,905	9,534	1,919	50,651	9,534	1,837
Subtotal by Lane	127,690	25,238	4,631	132,371	26,921	4,801
Subtotal by Time Period	321,652					
Evening Peak Period (3:00 PM - 7:00 PM)						
SR-73 to Brookhurst	55,690	12,021	2,020	55,874	10,894	2,027
Brookhurst to SR-22 East	45,747	11,270	1,659	43,523	11,082	1,579
SR-22 East to I-605	66,265	12,772	2,403	71,518	12,772	2,594
Subtotal by Lane	167,702	36,063	6,082	170,915	34,748	6,200
Subtotal by Time Period	421,710					
Non-Peak Periods						
SR-73 to Brookhurst	65,777	4,515	2,386	54,805	2,072	1,988
Brookhurst to SR-22 East	54,064	4,113	1,961	46,099	3,692	1,672
SR-22 East to I-605	72,720	4,287	2,638	68,707	4,253	2,492
Subtotal by Lane	192,561	12,915	6,985	169,611	10,017	6,152
Subtotal by Time Period	398,241					
Total by Lane	487,953	74,216	17,698	472,897	71,686	17,153
Total by Scenario	1,141,603					
FUTURE (2040) – NO BUILD						
Morning Peak Period (6:00 AM - 9:00 AM)						
SR-73 to Brookhurst	50,102	6,205	1,817	67,025	8,183	2,431
Brookhurst to SR-22 East	39,757	7,387	1,442	42,909	7,857	1,556
SR-22 East to I-605	57,692	12,921	2,092	61,637	13,668	2,236
Subtotal by Lane	147,551	26,513	5,351	171,571	29,708	6,223
Subtotal by Time Period	386,917					
Evening Peak Period (3:00 PM- 7:00 PM)						
SR-73 to Brookhurst	77,432	9,503	2,808	67,707	8,419	2,456
Brookhurst to SR-22 East	56,708	10,439	2,057	49,258	9,187	1,787
SR-22 East to I-605	79,108	17,571	2,869	74,628	16,726	2,707
Subtotal by Lane	213,248	37,513	7,734	191,593	34,332	6,950
Subtotal by Time Period	491,370					
Non-Peak Periods						
SR-73 to Brookhurst	59,164	2,902	2,146	46,624	384	1,691
Brookhurst to SR-22 East	42,764	6,781	1,551	35,425	5,850	1,285
SR-22 East to I-605	55,196	17,743	2,002	55,467	12,726	2,012
Subtotal by Lane	157,124	27,426	5,699	137,516	18,960	4,988

Scenario	Traffic Volumes					
	Northbound			Southbound		
	GP	HOV	TRUCK	GP	HOV	TRUCK
Subtotal by Time Period	351,713					
Total by Lane	517,923	91,452	18,784	500,680	83,000	18,161
Total by Scenario	1,230,000					
FUTURE (2040) – ALTERNATIVE 3						
Morning Peak Period (6:00 AM - 9:00 AM)						
SR-73 to Brookhurst	48,108	8,132	1,745	61,644	8,974	2,236
Brookhurst to SR-22 East	42,477	7,572	1,541	41,839	8,413	1,517
SR-22 East to I-605	63,730	9,534	2,311	63,466	9,534	2,302
Subtotal by Lane	154,315	25,238	5,597	166,949	26,921	6,055
Subtotal by Time Period	385,075					
Evening Peak Period (3:00 PM - 7:00 PM)						
SR-73 to Brookhurst	68,746	12,021	2,493	67,106	10,894	2,434
Brookhurst to SR-22 East	54,895	11,270	1,991	52,011	11,082	1,886
SR-22 East to I-605	80,390	12,772	2,916	84,264	12,772	3,056
Subtotal by Lane	204,031	36,063	7,400	203,381	34,748	7,376
Subtotal by Time Period	492,999					
Non-Peak Periods						
SR-73 to Brookhurst	69,275	5,266	2,513	53,137	2,349	1,927
Brookhurst to SR-22 East	54,758	4,711	1,986	44,269	4,176	1,606
SR-22 East to I-605	74,846	5,019	2,715	66,149	4,826	2,399
Subtotal by Lane	198,879	14,996	7,214	163,555	11,351	5,932
Subtotal by Time Period	401,927					
Total by Lane	557,225	76,297	20,211	533,885	73,020	19,363
Total by Scenario	1,280,001					

Alternative	ADT Summary	Average Speed (Miles per Hour)
2020 No Build Total Volume	1,111,598	37
2020 Build Total Volume	1,141,603	57
2040 No Build Total Volume	1,230,000	25
2040 Build Total Volume	1,280,001	45

Table B: Traffic Data – Average Daily VMT (2020 and 2040)

Scenario	Traffic VMT					
	Northbound			Southbound		
	GP	HOV	TRUCK	GP	HOV	TRUCK
FUTURE (2020) – NO BUILD						
Morning Peak Period (6:00 AM- 9:00 AM)						
SR-73 to Brookhurst	149,071	19,035	5,407	164,949	23,022	5,983
Brookhurst to SR-22 East	240,943	46,146	8,739	213,937	44,475	7,759
SR-22 East to I-605	163,722	37,183	5,938	145,491	35,992	5,277
Subtotal by Lane	553,736	102,364	20,084	524,377	103,489	19,019
Subtotal by Time Period	1,323,069					
Evening Peak Period (3:00 PM - 7:00 PM)						
SR-73 to Brookhurst	223,844	28,336	8,119	201,597	25,836	7,312
Brookhurst to SR-22 East	347,838	66,043	12,616	306,457	58,906	11,115
SR-22 East to I-605	221,904	49,954	8,048	216,136	49,210	7,839
Subtotal by Lane	793,586	144,333	28,783	724,190	133,952	26,266
Subtotal by Time Period	1,851,110					
Non-Peak Periods						
SR-73 to Brookhurst	195,662	9,503	7,097	194,265	3,308	7,046
Brookhurst to SR-22 East	304,609	45,533	11,048	297,993	42,463	10,808
SR-22 East to I-605	180,297	52,084	6,539	213,329	41,112	7,737
Subtotal by Lane	680,568	107,120	24,684	705,587	86,883	25,591
Subtotal by Time Period	1,630,433					
Total by Lane	2,027,890	353,817	73,551	1,954,154	324,324	70,876
Total by Scenario	4,804,612					
FUTURE (2020) – ALTERNATIVE 3						
Morning Peak Period (6:00 AM - 9:00 AM)						
SR-73 to Brookhurst	137,501	27,893	4,987	170,413	30,781	6,181
Brookhurst to SR-22 East	242,529	52,928	8,796	223,937	58,807	8,122
SR-22 East to I-605	173,528	31,272	6,294	166,134	31,272	6,026
Subtotal by Lane	553,558	112,093	20,077	560,484	120,860	20,329
Subtotal by Time Period	1,387,401					
Evening Peak Period (3:00 PM - 7:00 PM)						
SR-73 to Brookhurst	191,016	41,232	6,928	191,647	37,366	6,951
Brookhurst to SR-22 East	319,773	78,777	11,598	304,227	77,463	11,034
SR-22 East to I-605	217,351	41,892	7,883	234,578	41,892	8,508
Subtotal by Lane	728,140	161,901	26,409	730,452	156,721	26,493
Subtotal by Time Period	1,830,116					
Non-Peak Periods						
SR-73 to Brookhurst	225,614	15,486	8,183	187,983	7,107	6,818
Brookhurst to SR-22 East	377,908	28,750	13,707	322,233	25,807	11,687

Scenario	Traffic VMT					
	Northbound			Southbound		
	GP	HOV	TRUCK	GP	HOV	TRUCK
SR-22 East to I-605	238,522	14,061	8,651	225,357	13,950	8,174
Subtotal by Lane	842,044	58,297	30,541	735,573	46,864	26,679
Subtotal by Time Period	1,739,998					
Total by Lane	2,123,742	332,291	77,027	2,026,509	324,445	73,501
Total by Scenario	4,957,515					
FUTURE (2040) – NO BUILD						
Morning Peak Period (6:00 AM - 9:00 AM)						
SR-73 to Brookhurst	171,851	21,285	6,233	229,897	28,066	8,338
Brookhurst to SR-22 East	277,898	51,636	10,079	299,932	54,923	10,878
SR-22 East to I-605	189,230	42,381	6,863	202,168	44,830	7,333
Subtotal by Lane	638,979	115,302	23,175	731,997	127,819	26,549
Subtotal by Time Period	1,663,821					
Evening Peak Period (3:00 PM- 7:00 PM)						
SR-73 to Brookhurst	265,592	32,594	9,633	232,234	28,878	8,423
Brookhurst to SR-22 East	396,392	72,972	14,377	344,315	64,217	12,488
SR-22 East to I-605	259,476	57,631	9,411	244,780	54,861	8,878
Subtotal by Lane	921,460	163,197	33,421	821,329	147,956	29,789
Subtotal by Time Period	2,117,152					
Non-Peak Periods						
SR-73 to Brookhurst	202,931	9,954	7,360	159,922	1,318	5,800
Brookhurst to SR-22 East	298,919	47,402	10,842	247,617	40,892	8,981
SR-22 East to I-605	181,042	58,197	6,566	181,933	41,740	6,599
Subtotal by Lane	682,892	115,553	24,768	589,472	83,950	21,380
Subtotal by Time Period	1,518,015					
Total by Lane	2,243,331	394,052	81,364	2,142,798	359,725	77,718
Total by Scenario	5,298,988					
FUTURE (2040) – ALTERNATIVE 3						
Morning Peak Period (6:00 AM - 9:00 AM)						
SR-73 to Brookhurst	165,010	27,893	5,985	211,440	30,781	7,669
Brookhurst to SR-22 East	296,915	52,928	10,769	292,455	58,807	10,607
SR-22 East to I-605	209,035	31,272	7,582	208,167	31,272	7,550
Subtotal by Lane	670,960	112,093	24,336	712,062	120,860	25,826
Subtotal by Time Period	1,666,137					
Evening Peak Period (3:00 PM - 7:00 PM)						
SR-73 to Brookhurst	235,797	41,232	8,552	230,175	37,366	8,348
Brookhurst to SR-22 East	383,718	78,777	13,917	363,555	77,463	13,186
SR-22 East to I-605	263,678	41,892	9,563	276,387	41,892	10,024

Scenario	Traffic VMT					
	Northbound			Southbound		
	GP	HOV	TRUCK	GP	HOV	TRUCK
Subtotal by Lane	883,193	161,901	32,032	870,117	156,721	31,558
Subtotal by Time Period	2,135,522					
Non-Peak Periods						
SR-73 to Brookhurst	237,612	18,062	8,618	182,261	8,057	6,610
Brookhurst to SR-22 East	382,755	32,930	13,882	309,441	29,190	11,223
SR-22 East to I-605	245,494	16,462	8,904	216,968	15,829	7,869
Subtotal by Lane	865,861	67,454	31,404	708,670	53,076	25,702
Subtotal by Time Period	1,752,167					
Total by Lane	2,420,014	341,448	87,772	2,290,849	330,657	83,086
Total by Scenario	5,553,826					

Alternative	VMT Summary	Average Speed (Miles per Hour)
2020 No Build Total VMT	4,804,612	37
2020 Build Total VMT	4,957,515	57
2040 No Build Total VMT	5,298,988	25
2040 Build Total VMT	5,553,826	45

Vehicle Emission Rates

Vehicle emission rates were determined using the California Air Resources Board's EMFAC2011 emission factor program. EMFAC2011 was made available by U.S. EPA for conformity analysis purposes on March 6, 2013.

EMFAC produces emission rates for exhaust emissions, tire wear, and brake wear. In addition to those emissions, this project is located in an area where re-entrained road dust emissions must be included. The latest U.S. EPA AP-42 analysis method for paved road dust is used; paved road dust emissions are added to emissions estimated using EMFAC or CT-EMFAC to determine the total emissions from the project or any network link.

Qualitative Emission Analysis (2006 U.S. EPA Guidance)

Qualitative emission analysis based on the methodology outlined in the 2006 U.S. EPA Guidance was carried out for this project. Emissions evaluated include direct exhaust emissions, tire wear, and brake wear. Paved road dust emissions were calculated and added to direct vehicle emissions. The project was determined to be a project of concern (POAQC) through interagency consultation on January 25, 2011.

The project was determined to be a project of concern (POAQC) through interagency consultation, on January 25, 2011. The modeling approach including planning assumptions and emission model version was concurred with by interagency consultation on October 28, 2014, and the approach was concurred with by interagency consultation on October 28, 2014. Results were reviewed with interagency consultation on October 28, 2014 and concurrence was obtained on that date.

In order to show that the project is unlikely to cause or contribute to, or worsen existing, air quality, emissions from the Build alternative must be equal to or lower than emissions from the No Build or No Project Alternative. The emission analysis for this project demonstrates that this criterion is met (see Table C). In addition, the project cannot move emissions significantly closer to existing sensitive receptors, and cannot cause intersection operation where a substantial number of diesel trucks are present to deteriorate below LOS D. This project also meets those criteria.

The project will move emissions 25-40 feet (7.6-12.2 meters) closer to sensitive receptors; however, there are a few areas where the widening is 60-80 feet (18.3-24.4 meters). Given the overall reduction in emissions, this is not considered to be a significant reduction in distance to sensitive receptors.

Based on this emission analysis, the Build Alternative will produce PM2.5 and PM10 emissions that are lower than No Build, will not reduce LOS at (an) intersection(s) with a substantial number of trucks to D or worse, and will not move emissions significantly closer to existing sensitive receptors. Therefore, the project is unlikely to cause or contribute to, or worsen existing, violations of the PM standards.

Detailed documentation of emission analysis, including emission model input documents and reports, is included in Appendix E.

Table C. Particulate Matter Emissions

Scenario and Emission Source	Total ADT	VMT Weighted Speed (Miles per Hour)[1]	Pounds per Day[2]	
			PM2.5	PM10
No Build (2020)	1,111,600	37	280	660
Alternative 3 (2020)	1,141,600	57	268	659
Net Change from No Build to Alternative 3 (2020)	30,000	20	-12	-1
No Build (2040)	1,230,000	25	364	789
Alternative 3 (2040)	1,280,000	45	308	749
Net Change from No Build to Alternative 3 (2040)	50,000	20	-56	-41

[1] The weighted average speed is calculated using the following formula:

$$VMT\ Weighted\ Average\ Speed = \frac{\sum Segment\ Length\ \times ADT\ \times Speed}{\sum Segment\ Length\ \times ADT}$$

[2] Total ADTs increase by 3.2% in 2020 and 4.1% in 2040. However, the amount of PM10 and PM2.5 emissions decrease because of the increase in travel speeds. Emission rates obtained from EMFAC2011 indicate a U-shaped curve with emission factors decreasing with speed until an optimal speed is reached and emissions begin to increase.

Vehicle Speeds for Existing, Build and No Build Alternatives in 2020 and 2040

Scenario	Speed (Miles Per Hour)			
	Northbound		Southbound	
	GP Lanes	HOV or MP Lanes	GP Lanes	HOV or MP Lanes
EXISTING/NO BUILD (2009)				
Morning Peak Period (6:00 - 9:00 AM)				
SR-22 East – I-605	35	55	31	51
Brookhurst Street – SR-22 East	43	53	17	47
SR-73 – Brookhurst Street	65	65	45	55
Evening Peak Period (3:00 - 7:00 PM)				
SR-22 East – I-605	47	55	45	55
Brookhurst Street – SR-22 East	45	55	50	60
SR-73 – Brookhurst Street	30	40	53	63
Non-Peak Periods				
SR-22 East – I-605	65	65	65	65
Brookhurst Street – SR-22 East	65	65	65	65
SR-73 – Brookhurst Street	65	65	65	65
DESIGN YEAR –No Build Alternative (2020)				
Morning Peak Period (6:00 - 9:00 AM)				
SR-22 East – I-605	45	45	13	13
Brookhurst Street – SR-22 East	16	16	14	14
SR-73 – Brookhurst Street	24	40	19	39
Evening Peak Period (3:00 - 7:00 PM)				
SR-22 East – I-605	25	25	39	39
Brookhurst Street – SR-22 East	12	12	15	15
SR-73 – Brookhurst Street	25	42	22	43
Non-Peak Periods				
SR-22 East – I-605	65	65	65	65
Brookhurst Street – SR-22 East	65	65	65	65
SR-73 – Brookhurst Street	65	65	65	65
OPENING YEAR –Build Alternative (2020)				
Morning Peak Period (6:00 - 9:00 AM)				
SR-22 East – I-605	64	65	37	65
Brookhurst Street – SR-22 East	58	65	45	65
SR-73 – Brookhurst Street	47	65	43	65
Evening Peak Period (3:00 - 7:00 PM)				
SR-22 East – I-605	58	65	62	65
Brookhurst Street – SR-22 East	51	65	51	65
SR-73 – Brookhurst Street	48	65	46	65
Non-Peak Periods				
SR-22 East – I-605	65	65	65	65
Brookhurst Street – SR-22 East	65	65	65	65
SR-73 – Brookhurst Street	65	65	65	65

DESIGN YEAR –No Build Alternative (2040)				
Morning Peak Period (6:00 - 9:00 AM)				
SR-22 East – I-605	21	21	5	5
Brookhurst Street – SR-22 East	5	5	5	5
SR-73 – Brookhurst Street	7	15	5	10
Evening Peak Period (3:00 - 7:00 PM)				
SR-22 East – I-605	10	10	20	20
Brookhurst Street – SR-22 East	5	5	6	6
SR-73 – Brookhurst Street	7	15	8	19
Non-Peak Periods				
SR-22 East – I-605	65	65	65	65
Brookhurst Street – SR-22 East	65	65	65	65
SR-73 – Brookhurst Street	65	65	65	65
DESIGN YEAR –Build Alternative (2040)				
Morning Peak Period (6:00 - 9:00 AM)				
SR-22 East – I-605	53	65	14	65
Brookhurst Street – SR-22 East	38	65	25	65
SR-73 – Brookhurst Street	22	65	14	65
Evening Peak Period (3:00 - 7:00 PM)				
SR-22 East – I-605	36	65	50	65
Brookhurst Street – SR-22 East	29	65	43	65
SR-73 – Brookhurst Street	22	65	24	65
Non-Peak Periods				
SR-22 East – I-605	65	65	65	65
Brookhurst Street – SR-22 East	65	65	65	65
SR-73 – Brookhurst Street	65	65	65	65

Mainline LOS Summary - Existing Conditions

Location	Lane Type	Direction	AM Peak Hour	PM Peak Hour
Bristol Street to Fairview Road	GP	NB	D	F
		SB	F	D
	HOV	NB	B	E
		SB	B	C
Fairview Road to Harbor Boulevard/Hyland Avenue	GP	NB	D	F
		SB	F	C
	HOV	NB	B	F
		SB	B	C
Harbor Boulevard/Hyland Avenue to Euclid Street/Ellis Avenue	GP	NB	D	F
		SB	F	D
	HOV	NB	B	E
		SB	B	C
Euclid Street/Ellis Avenue to Brookhurst Street/Talbert Avenue	GP	NB	D	F
		SB	F	D
	HOV	NB	B	E
		SB	D	D

Location	Lane Type	Direction	AM Peak Hour	PM Peak Hour
Brookhurst Street/Talbert Avenue to Magnolia Street/Warner Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	C	F
		SB	D	C
Magnolia Street/Warner Avenue to Beach Boulevard/Edinger Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	D	C
		SB	C	D
Beach Boulevard/Edinger Street to Goldenwest Street/Bolsa Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	C	F
		SB	D	E
Goldenwest Street/Bolsa Avenue to Springdale Street/Westminster Boulevard	GP	NB	F	F
		SB	F	F
	HOV	NB	C	F
		SB	C	D
Springdale Street/Westminster Boulevard to Bolsa Chica Road/Valley View Street	GP	NB	F	F
		SB	F	F
	HOV	NB	C	F
		SB	C	D
Bolsa Chica Road/Valley View Street to Seal Beach Boulevard	GP	NB	F	F
		SB	F	F
	HOV	NB	D	F
		SB	C	D
Seal Beach Boulevard to I-605	GP	NB	F	F
		SB	F	F
	HOV	NB	C	C
		SB	D	F
I-605 to San Gabriel River	GP	NB	F	C
		SB	D	F
	HOV	NB	D	D
		SB	B	E
SR-73 — Bear Street to I-405	GP	NB	B	C
		SB	B	B
I-605 — I-405 to Katella Avenue	GP	NB	C	C
		SB	F	F

Mainline LOS Summary – No Build Alternative (Year 2020)

Location	Lane Type	Direction	AM Peak Hour	PM Peak Hour
Bristol Street to Fairview Road	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Fairview Road to Harbor Boulevard/Hyland Avenue	GP	NB	D	F
		SB	F	F
	HOV	NB	D	F

Location	Lane Type	Direction	AM Peak Hour	PM Peak Hour
		SB	F	F
Harbor Boulevard/Hyland Avenue to Euclid Street/Ellis Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Euclid Street/Ellis Avenue to Brookhurst Street/Talbert Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Brookhurst Street/Talbert Avenue to Magnolia Street/Warner Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Magnolia Street/Warner Avenue to Beach Boulevard/Edinger Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Beach Boulevard/Edinger Street to Goldenwest Street/Bolsa Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Goldenwest Street/Bolsa Avenue to Springdale Street/Westminster Boulevard	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Springdale Street/Westminster Boulevard to Bolsa Chica Road/Valley View Street	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Bolsa Chica Road/Valley View Street to Seal Beach Boulevard	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Seal Beach Boulevard to I-605	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
I-605 to San Gabriel River	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
SR-73 — Bear Street to I-405	GP	NB	C	C
		SB	C	B
I-605 — I-405 to Katella Avenue	GP	NB	C	C
		SB	D	C

Mainline LOS Summary – No Build Alternative (Year 2040)

Location	Lane Type	Direction	AM Peak Hour	PM Peak Hour
Bristol Street to Fairview Road	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Fairview Road to Harbor Boulevard/Hyland Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Harbor Boulevard/Hyland Avenue to Euclid Street/Ellis Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Euclid Street/Ellis Avenue to Brookhurst Street/Talbert Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Brookhurst Street/Talbert Avenue to Magnolia Street/Warner Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Magnolia Street/Warner Avenue to Beach Boulevard/Edinger Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Beach Boulevard/Edinger Street to Goldenwest Street/Bolsa Avenue	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Goldenwest Street/Bolsa Avenue to Springdale Street/Westminster Boulevard	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Springdale Street/Westminster Boulevard to Bolsa Chica Road/Valley View Street	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Bolsa Chica Road/Valley View Street to Seal Beach Boulevard	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
Seal Beach Boulevard to I-605	GP	NB	F	F
		SB	F	F
	HOV	NB	F	F
		SB	F	F
I-605 to San Gabriel River	GP	NB	F	F
		SB	F	F

Location	Lane Type	Direction	AM Peak Hour	PM Peak Hour
	HOV	NB	F	F
		SB	F	F
SR-73 — Bear Street to I-405	GP	NB	C	C
		SB	D	C
I-605 — I-405 to Katella Avenue	GP	NB	C	F
		SB	F	D

Appendix F. CO Modeling Data and Analysis Graphics

CALINE4

Input Files

```
*----------------------------------------
*  Input File: BEACH BLVD AND I-405SBRAMPS
*----------------------------------------

BEACH BLVD AND I-405SBRAMPS
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
```

```
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
2353 2353 3308 3308 2586 2586 3620 3620 1642 1205 334 334 681 681 0 0 0 0 437 0
1.29 2.64 1.83 1.29 1.29 2.64 1.83 1.29 1.29 2.64 1.57 1.29 1.29 2.64 1.57 1.29 1.83 1.83 2.64
2.64
0 0.5 7 1000 5 0 15.6

*--------------------------------------------
*  Input File: EUCLID STREET AND I-405 NB RAMPS
*--------------------------------------------

EUCLID STREET AND I-405 NB RAMPS
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
```

```
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
917 751 1440 1440 1242 1242 2406 2406 712 282 668 668 2097 1202 454 454 166 0 430 895
1.29 2.64 2.64 1.29 1.29 2.64 2.64 1.29 1.29 2.19 1.57 1.29 1.29 2.64 1.57 1.29 2.19 2.19 2.19
2.64
0 0.5 7 1000 5 0 15.6

*----------------------------------------
*  Input File: GOLDENWESTST AND BOLSA AVE
*----------------------------------------

GOLDENWESTST AND BOLSA AVE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
```

```
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
917 751 1440 1440 1242 1242 2406 2406 712 282 668 668 2097 1202 454 454 166 0 430 895
1.29 2.64 2.64 1.29 1.29 2.64 2.64 1.29 1.29 2.19 1.57 1.29 1.29 2.64 1.57 1.29 2.19 2.19 2.19
2.64
0 0.5 7 1000 5 0 15.6

*----------------------------------------
*  Input File: I-405SB RAMPS AND ELLIS AVE
*----------------------------------------

I-405SB RAMPS AND ELLIS AVE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
```

```
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
```

```
31101
193 163 1230 1230 429 139 35 35 2406 2383 1400 1400 554 554 917 917 30 290 23 0
1.29 2.64 2.64 1.29 1.29 2.64 2.19 1.29 1.29 2.64 1.57 1.29 1.29 2.19 1.57 1.29 2.64 2.64 1.83
1.83
0 0.5 7 1000 5 0 15.6

*-----------------------------------------
*  Input File: I-405NBOFFRAMP AND GARDENGROVE
*-----------------------------------------

I-405NBOFFRAMP AND GARDENGROVE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
```

```
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
1389 1230 1440 1440 1585 1365 1457 1457 1931 1741 1948 1948 1694 1419 1754 1754 159 220 190 275
1.29 2.64 2.64 1.29 1.29 2.64 2.64 1.29 1.29 2.64 2.19 1.29 1.29 2.64 2.19 1.29 2.19 2.19 2.19
2.19
0 0.5 7 1000 5 0 15.6

*------------------------------------------
*  Input File: MAGNOLIA STREET AND WARNER AVENU
*------------------------------------------

MAGNOLIA STREET AND WARNER AVENU
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
```

```
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
1389 1230 1440 1440 1585 1365 1457 1457 1931 1741 1948 1948 1694 1419 1754 1754 159 220 190 275
1.29 2.64 2.64 1.29 1.29 2.64 2.64 1.29 1.29 2.64 2.19 1.29 1.29 2.64 2.19 1.29 2.19 2.19 2.19
2.19
0 0.5 7 1000 5 0 15.6

*--------------------------------------------
*  Input File: SEALBEACH BLVD AND I-405SBRAMPS
*--------------------------------------------

SEALBEACH BLVD AND I-405SBRAMPS
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
```

```
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
3075 2881 3262 3262 3119 2924 3100 3100 1090 716 1042 1042 784 438 664 664 194 195 374 346
1.29 2.64 1.57 1.29 1.29 2.64 1.57 1.29 1.29 2.64 2.64 1.29 1.29 2.64 2.64 1.29 1.83 1.83 2.64
2.64
0 0.5 7 1000 5 0 15.6

*----------------------------------------
*  Input File: SPRINGDALE AND WESTMINISTER
*----------------------------------------
```

```
SPRINGDALE AND WESTMINISTER
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
```

```
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
193 163 1230 1230 429 139 35 35 2406 2383 1400 1400 554 554 917 917 30 290 23 0
1.29 2.64 2.64 1.29 1.29 2.64 2.19 1.29 1.29 2.64 1.57 1.29 1.29 2.19 1.57 1.29 2.64 2.64 1.83
1.83
0 0.5 7 1000 5 0 15.6

*--------------------------------------------------
*  Input File:  BEACH BOULEVARD AND MCFADDEN AVENUE
*--------------------------------------------------

BEACH BOULEVARD AND MCFADDEN AVENUE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
```

```
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
3075 2881 3262 3262 3119 2924 3100 3100 1090 716 1042 1042 784 438 664 664 194 195 374 346
1.29 2.64 1.57 1.29 1.29 2.64 1.57 1.29 1.29 2.64 2.64 1.29 1.29 2.64 2.64 1.29 1.83 1.83 2.64
2.64
0 0.5 7 1000 5 0 15.6

*--------------------------------------------------
*  Input File:  BRISTOL STREET AND I-405 NB OFF RAMP
*--------------------------------------------------

  BRISTOL STREET AND I-405 NB OFF RAMP
1Carbon Monoxide
100       28      0       0       8       20      0.3048  1       1       0       0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25        25      6
25        -25     6
-25       -25     6
-25       25      6
38        38      6
38        -38     6
-38       -38     6
-38       38      6
NF
NA
ND
NE
```

```
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1          7.5      -1500    7.5      -500     0        33       0        0        0
1          7.5      -500     7.5      0        0        33       0        0        0
1          7.5      0        7.5      500      0        33       0        0        0
1          7.5      500      7.5      1500     0        33       0        0        0
1          -7.5     1500     -7.5     500      0        33       0        0        0
1          -7.5     500      -7.5     0        0        33       0        0        0
1          -7.5     0        -7.5     -500     0        33       0        0        0
1          -7.5     -500     -7.5     -1500    0        33       0        0        0
1          1500     7.5      500      7.5      0        33       0        0        0
1          500      7.5      0        7.5      0        33       0        0        0
1          0        7.5      -500     7.5      0        33       0        0        0
1          -500     7.5      -1500    7.5      0        33       0        0        0
1          -1500    -7.5     -500     -7.5     0        33       0        0        0
1          -500     -7.5     0        -7.5     0        33       0        0        0
1          0        -7.5     500      -7.5     0        33       0        0        0
1          500      -7.5     1500     -7.5     0        33       0        0        0
1          0        0        7.5      -500     0        33       0        0        0
1          0        0        -7.5     500      0        33       0        0        0
1          0        0        500      7.5      0        33       0        0        0
1          0        0        -500     -7.5     0        33       0        0        0
31111
2353       2353     3308     3308     2586     2586     3620     3620     1642     1205     334
334      681      681      0        0        0        0        437      0
1.29       2.64     1.83     1.29     1.29     2.64     1.83     1.29     1.29     2.64     1.57
1.29     1.29     2.64     1.57     1.29     1.83     1.83     2.64     2.64
0.000000E+00     5.000000E-01            7         1000.00        5.000000
0.000000E+00        0.500000        7        1000.00        5.000000        0.000000        15.600000
```

```
*-------------------------------------------
*  Input File: I-405NBOFFRAMP AND GARDENGROVE
*-------------------------------------------
I-405NBOFFRAMP AND GARDENGROVE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
```

```
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
1297 300 1391 1391 503 369 0 0 458 458 1734 1734 1564 493 697 697 997 134 0 1071
0.81 1.36 1.62 0.81 0.81 1.62 0.97 0.81 0.81 1.36 1.62 0.81 0.81 1.36 0.97 0.81 1.62 1.36 1.36
1.62
0 0.5 7 1000 5 0 15.6

*-----------------------------------------------
*  Input File: MAGNOLIA STREET AND WARNER AVENU
*-----------------------------------------------
MAGNOLIA STREET AND WARNER AVENU
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
```

```
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
1554 1388 1686 1686 1777 1492 1563 1563 2153 1950 2167 2167 1766 1424 1834 1834 166 285 203 342
0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 1.36 1.36 1.36
1.36
0 0.5 7 1000 5 0 15.6

*--------------------------------------------
*  Input File: SEALBEACH BLVD AND I-405SBRAMPS
*--------------------------------------------
SEALBEACH BLVD AND I-405SBRAMPS
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
```

```
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
2318 2308 2705 2705 2379 1744 2244 2244 1343 752 161 161 240 79 1170 1170 10 635 591 161
0.81 1.62 0.97 0.81 0.81 1.62 0.97 0.81 0.81 1.62 0.97 0.81 0.81 1.62 1.62 0.81 1.13 1.36 1.62
1.62
0 0.5 7 1000 5 0 15.6

*----------------------------------------
*  Input File: SPRINGDALE AND WESTMINISTER
*----------------------------------------
SPRINGDALE AND WESTMINISTER
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
```

```
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
1523 1347 1150 1150 1654 1062 1359 1359 1646 1328 1225 1225 1543 1343 2632 2632 176 592 318 200
0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 1.36 1.62 1.36
1.36
```

```
0 0.5 7 1000 5 0 15.6

*----------------------------------------
*  Input File: BEACH BLVD AND I-405SBRAMPS
*----------------------------------------
BEACH BLVD AND I-405SBRAMPS
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
```

```
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
3071 3071 3532 3532 3849 3849 4089 4089 0 0 989 989 1690 1229 0 0 0 0 0 461
0.81 1.62 0.97 0.81 0.81 1.62 0.97 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.13 0.81 1.13 1.13 1.62
1.62
0 0.5 7 1000 5 0 15.6

*------------------------------------------------
*  Input File: BEACH BOULEVARD AND MCFADDEN AVENUE
*------------------------------------------------
BEACH BOULEVARD AND MCFADDEN AVENUE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
```

```
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
3437 3211 3587 3587 3370 3167 3370 3370 1148 746 1109 1109 838 477 727 727 226 203 402 361
0.81 1.62 0.97 0.81 0.81 1.62 0.97 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 1.13 1.13 1.62
1.62
0 0.5 7 1000 5 0 15.6

*------------------------------------------------
*  Input File: BRISTOL STREET AND I-405 NB OFF RAMP
*------------------------------------------------
BRISTOL STREET AND I-405 NB OFF RAMP
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
```

```
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
2437 2437 3456 3456 2820 2820 3976 3976 1841 1300 375 375 709 709 0 0 0 0 541 0
0.81 1.62 1.13 0.81 0.81 1.62 1.13 0.81 0.81 1.62 1.13 0.81 0.81 1.62 0.97 0.81 1.13 1.13 1.62
1.62
0 0.5 7 1000 5 0 15.6

*-----------------------------------------------
*  Input File: EUCLID STREET AND I-405 NB RAMPS
*-----------------------------------------------
EUCLID STREET AND I-405 NB RAMPS
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
```

```
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
1052 867 1647 1647 1420 1420 2724 2724 743 294 714 714 2395 1369 525 525 185 0 449 1026
```

```
0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 0.81 1.36 0.97 0.81 0.81 1.62 0.97 0.81 1.36 1.36 1.36
1.62
0 0.5 7 1000 5 0 15.6

*----------------------------------------
*  Input File: GOLDENWESTST AND BOLSA AVE
*----------------------------------------
GOLDENWESTST AND BOLSA AVE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
```

```
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
2011 1773 2285 2285 1473 1335 1926 1926 2025 1480 1175 1175 1867 1606 1990 1990 238 138 545 261
0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 0.81 1.62 1.62 0.81 1.36 1.36 1.36
1.36
0 0.5 7 1000 5 0 15.6

*----------------------------------------
*  Input File: I-405SB RAMPS AND ELLIS AVE
*----------------------------------------

I-405SB RAMPS AND ELLIS AVE
1Carbon Monoxide
100 28 0 0 8 20 0.3048 1 1 0
NE3
SE3
SW3
NW3
NE7
SE7
SW7
NW7
25 25 6
25 -25 6
-25 -25 6
-25 25 6
38 38 6
38 -38 6
-38 -38 6
-38 38 6
NF
NA
ND
NE
SF
SA
SD
SE
WF
WA
WD
WE
EF
```

```
EA
ED
EE
NL
SL
WL
EL
1 7.5 -1500 7.5 -500 0 33 0 0 0
1 7.5 -500 7.5 0 0 33 0 0 0
1 7.5 0 7.5 500 0 33 0 0 0
1 7.5 500 7.5 1500 0 33 0 0 0
1 -7.5 1500 -7.5 500 0 33 0 0 0
1 -7.5 500 -7.5 0 0 33 0 0 0
1 -7.5 0 -7.5 -500 0 33 0 0 0
1 -7.5 -500 -7.5 -1500 0 33 0 0 0
1 1500 7.5 500 7.5 0 33 0 0 0
1 500 7.5 0 7.5 0 33 0 0 0
1 0 7.5 -500 7.5 0 33 0 0 0
1 -500 7.5 -1500 7.5 0 33 0 0 0
1 -1500 -7.5 -500 -7.5 0 33 0 0 0
1 -500 -7.5 0 -7.5 0 33 0 0 0
1 0 -7.5 500 -7.5 0 33 0 0 0
1 500 -7.5 1500 -7.5 0 33 0 0 0
1 0 0 7.5 -500 0 33 0 0 0
1 0 0 -7.5 500 0 33 0 0 0
1 0 0 500 7.5 0 33 0 0 0
1 0 0 -500 -7.5 0 33 0 0 0
31101
211 179 1433 1433 504 166 46 46 2724 2692 1548 1548 640 640 1052 1052 32 338 32 0
0.81 1.62 1.62 0.81 0.81 1.62 1.13 0.81 0.81 1.62 0.97 0.81 0.81 1.36 0.97 0.81 1.62 1.62 1.13
1.13
0 0.5 7 1000 5 0 15.6
```

CALINE4

Results

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   1

              JOB: SPRINGDALE AND WESTMINISTER
              RUN:                   (WORST CASE ANGLE)
       POLLUTANT: Carbon Monoxide


  I.  SITE VARIABLES

        U=   0.5 M/S            Z0= 100. CM           ALT= 0.0 (M)
      BRG= WORST CASE           VD=  0.0 CM/S
     CLAS=     7 (G)            VS=  0.0 CM/S
     MIXH= 1000. M              AMB=  0.0 PPM
    SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)


  II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (FT)  *             EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (FT)  (FT)
---------------*-------------------------*-----------------------------
A. NF          *     8 -1500     8  -500 *  AG    193   1.3    0.0  33.0
B. NA          *     8  -500     8     0 *  AG    163   2.6    0.0  33.0
C. ND          *     8     0     8   500 *  AG   1230   2.6    0.0  33.0
D. NE          *     8   500     8  1500 *  AG   1230   1.3    0.0  33.0
E. SF          *    -8  1500    -8   500 *  AG    429   1.3    0.0  33.0
F. SA          *    -8   500    -8     0 *  AG    139   2.6    0.0  33.0
G. SD          *    -8     0    -8  -500 *  AG     35   2.2    0.0  33.0
H. SE          *    -8  -500    -8 -1500 *  AG     35   1.3    0.0  33.0
I. WF          *  1500     8   500     8 *  AG   2406   1.3    0.0  33.0
J. WA          *   500     8     0     8 *  AG   2383   2.6    0.0  33.0
K. WD          *     0     8  -500     8 *  AG   1400   1.6    0.0  33.0
L. WE          *  -500     8 -1500     8 *  AG   1400   1.3    0.0  33.0
M. EF          * -1500    -8  -500    -8 *  AG    554   1.3    0.0  33.0
N. EA          *  -500    -8     0    -8 *  AG    554   2.2    0.0  33.0
O. ED          *     0    -8   500    -8 *  AG    917   1.6    0.0  33.0
P. EE          *   500    -8  1500    -8 *  AG    917   1.3    0.0  33.0
Q. NL          *     0     0     8  -500 *  AG     30   2.6    0.0  33.0
R. SL          *     0     0    -8   500 *  AG    290   2.6    0.0  33.0
S. WL          *     0     0   500     8 *  AG     23   1.8    0.0  33.0
T. EL          *     0     0  -500    -8 *  AG      0   1.8    0.0  33.0


FF

          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   2

              JOB: SPRINGDALE AND WESTMINISTER
              RUN:                   (WORST CASE ANGLE)
```

POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	95.	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SE3	356.	1.3	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0
3. SW3	84.	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. NW3	94.	1.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
5. NE7	97.	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. SE7	353.	0.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
7. SW7	82.	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	97.	1.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: SPRINGDALE AND WESTMINISTER
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.1	1.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
2. SE3	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
3. SW3	0.1	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0

4. NW3	*	0.1	1.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
5. NE7	*	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6. SE7	*	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
7. SW7	*	0.0	0.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
8. NW7	*	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	2353	1.3	0.0	33.0
B. NA	*	8	-500	8	0	* AG	2353	2.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	3308	1.8	0.0	33.0
D. NE	*	8	500	8	1500	* AG	3308	1.3	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	2586	1.3	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	2586	2.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	3620	1.8	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	3620	1.3	0.0	33.0
I. WF	*	1500	8	500	8	* AG	1642	1.3	0.0	33.0
J. WA	*	500	8	0	8	* AG	1205	2.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	334	1.6	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	334	1.3	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	681	1.3	0.0	33.0

N. EA	*	-500	-8	0	-8	*	AG	681	2.6	0.0	33.0
O. ED	*	0	-8	500	-8	*	AG	0	1.6	0.0	33.0
P. EE	*	500	-8	1500	-8	*	AG	0	1.3	0.0	33.0
Q. NL	*	0	0	8	-500	*	AG	0	1.8	0.0	33.0
R. SL	*	0	0	-8	500	*	AG	0	1.8	0.0	33.0
S. WL	*	0	0	500	8	*	AG	437	2.6	0.0	33.0
T. EL	*	0	0	-500	-8	*	AG	0	2.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. NE3	*	25	25	6.0
2. SE3	*	25	-25	6.0
3. SW3	*	-25	-25	6.0
4. NW3	*	-25	25	6.0
5. NE7	*	38	38	6.0
6. SE7	*	38	-38	6.0
7. SW7	*	-38	-38	6.0
8. NW7	*	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	*	185.	*	2.1	*	0.0	1.0	0.2	0.0	0.0	0.0	0.5	0.1
2. SE3	*	354.	*	2.0	*	0.0	0.2	0.9	0.0	0.1	0.5	0.0	0.0
3. SW3	*	5.	*	2.0	*	0.0	0.0	0.4	0.1	0.1	1.1	0.2	0.0
4. NW3	*	175.	*	2.0	*	0.1	0.5	0.0	0.0	0.0	0.2	1.0	0.1
5. NE7	*	187.	*	1.3	*	0.0	0.6	0.0	0.0	0.0	0.0	0.4	0.1
6. SE7	*	352.	*	1.2	*	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.0
7. SW7	*	7.	*	1.2	*	0.0	0.0	0.3	0.1	0.0	0.6	0.0	0.0
8. NW7	*	172.	*	1.2	*	0.0	0.4	0.0	0.0	0.0	0.0	0.6	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

JUNE 1989 VERSION
PAGE 3

JOB: BEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
2. SE3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3. SW3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
4. NW3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
5. NE7	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
6. SE7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
7. SW7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BEACH BOULEVARD AND MCFADDEN AVENUE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	3075	1.3	0.0	33.0
B. NA	8	-500	8	0	AG	2881	2.6	0.0	33.0
C. ND	8	0	8	500	AG	3262	1.6	0.0	33.0
D. NE	8	500	8	1500	AG	3262	1.3	0.0	33.0
E. SF	-8	1500	-8	500	AG	3119	1.3	0.0	33.0
F. SA	-8	500	-8	0	AG	2924	2.6	0.0	33.0
G. SD	-8	0	-8	-500	AG	3100	1.6	0.0	33.0
H. SE	-8	-500	-8	-1500	AG	3100	1.3	0.0	33.0
I. WF	1500	8	500	8	AG	1090	1.3	0.0	33.0
J. WA	500	8	0	8	AG	716	2.6	0.0	33.0
K. WD	0	8	-500	8	AG	1042	2.6	0.0	33.0
L. WE	-500	8	-1500	8	AG	1042	1.3	0.0	33.0
M. EF	-1500	-8	-500	-8	AG	784	1.3	0.0	33.0
N. EA	-500	-8	0	-8	AG	438	2.6	0.0	33.0
O. ED	0	-8	500	-8	AG	664	2.6	0.0	33.0
P. EE	500	-8	1500	-8	AG	664	1.3	0.0	33.0
Q. NL	0	0	8	-500	AG	194	1.8	0.0	33.0
R. SL	0	0	-8	500	AG	195	1.8	0.0	33.0
S. WL	0	0	500	8	AG	374	2.6	0.0	33.0
T. EL	0	0	-500	-8	AG	346	2.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BEACH BOULEVARD AND MCFADDEN AVENUE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	185.	2.2	0.1	1.2	0.1	0.0	0.0	0.0	0.3	0.1
2. SE3	354.	2.1	0.0	0.2	0.8	0.0	0.1	0.6	0.0	0.0
3. SW3	5.	2.2	0.0	0.0	0.4	0.1	0.1	1.2	0.1	0.0
4. NW3	174.	2.0	0.1	0.6	0.0	0.0	0.0	0.2	0.8	0.0
5. NE7	187.	1.3	0.0	0.7	0.0	0.0	0.0	0.0	0.3	0.1
6. SE7	352.	1.3	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0
7. SW7	7.	1.3	0.0	0.0	0.3	0.1	0.0	0.7	0.0	0.0
8. NW7	172.	1.2	0.0	0.5	0.0	0.0	0.0	0.0	0.4	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BEACH BOULEVARD AND MCFADDEN AVENUE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0
2. SE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
3. SW3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1
4. NW3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1
5. NE7	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
6. SE7	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
7. SW7	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION

PAGE 1

JOB: EUCLID STREET AND I-405 NB RAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	917	1.3	0.0	33.0
B. NA	8	-500	8	0	AG	751	2.6	0.0	33.0
C. ND	8	0	8	500	AG	1440	2.6	0.0	33.0
D. NE	8	500	8	1500	AG	1440	1.3	0.0	33.0
E. SF	-8	1500	-8	500	AG	1242	1.3	0.0	33.0
F. SA	-8	500	-8	0	AG	1242	2.6	0.0	33.0
G. SD	-8	0	-8	-500	AG	2406	2.6	0.0	33.0
H. SE	-8	-500	-8	-1500	AG	2406	1.3	0.0	33.0
I. WF	1500	8	500	8	AG	712	1.3	0.0	33.0
J. WA	500	8	0	8	AG	282	2.2	0.0	33.0
K. WD	0	8	-500	8	AG	668	1.6	0.0	33.0
L. WE	-500	8	-1500	8	AG	668	1.3	0.0	33.0
M. EF	-1500	-8	-500	-8	AG	2097	1.3	0.0	33.0
N. EA	-500	-8	0	-8	AG	1202	2.6	0.0	33.0
O. ED	0	-8	500	-8	AG	454	1.6	0.0	33.0
P. EE	500	-8	1500	-8	AG	454	1.3	0.0	33.0
Q. NL	0	0	8	-500	AG	166	2.2	0.0	33.0
R. SL	0	0	-8	500	AG	0	2.2	0.0	33.0
S. WL	0	0	500	8	AG	430	2.2	0.0	33.0
T. EL	0	0	-500	-8	AG	895	2.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: EUCLID STREET AND I-405 NB RAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	264.	1.4	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0
2. SE3	275.	1.6	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0
3. SW3	6.	1.6	0.0	0.0	0.4	0.0	0.0	0.6	0.2	0.0
4. NW3	175.	1.8	0.0	0.2	0.0	0.0	0.0	0.1	1.0	0.0
5. NE7	262.	1.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
6. SE7	277.	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0
7. SW7	7.	1.0	0.0	0.0	0.3	0.0	0.0	0.4	0.0	0.0
8. NW7	173.	1.2	0.0	0.2	0.0	0.0	0.0	0.0	0.6	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: EUCLID STREET AND I-405 NB RAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
2. SE3	0.0	0.0	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.3
3. SW3	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
4. NW3	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1
5. NE7	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
6. SE7	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2

7. SW7	*	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
8. NW7	*	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: GOLDENWESTST AND BOLSA AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	917	1.3	0.0	33.0
B. NA	*	8	-500	8	0	* AG	751	2.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	1440	2.6	0.0	33.0
D. NE	*	8	500	8	1500	* AG	1440	1.3	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	1242	1.3	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	1242	2.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	2406	2.6	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	2406	1.3	0.0	33.0
I. WF	*	1500	8	500	8	* AG	712	1.3	0.0	33.0
J. WA	*	500	8	0	8	* AG	282	2.2	0.0	33.0
K. WD	*	0	8	-500	8	* AG	668	1.6	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	668	1.3	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	2097	1.3	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	1202	2.6	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	454	1.6	0.0	33.0
P. EE	*	500	-8	1500	-8	* AG	454	1.3	0.0	33.0

Q. NL	*	0	0	8	-500	*	AG	166	2.2	0.0	33.0
R. SL	*	0	0	-8	500	*	AG	0	2.2	0.0	33.0
S. WL	*	0	0	500	8	*	AG	430	2.2	0.0	33.0
T. EL	*	0	0	-500	-8	*	AG	895	2.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: GOLDENWESTST AND BOLSA AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	264.	1.4	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0
2. SE3	275.	1.6	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0
3. SW3	6.	1.6	0.0	0.0	0.4	0.0	0.0	0.6	0.2	0.0
4. NW3	175.	1.8	0.0	0.2	0.0	0.0	0.0	0.1	1.0	0.0
5. NE7	262.	1.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
6. SE7	277.	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0
7. SW7	7.	1.0	0.0	0.0	0.3	0.0	0.0	0.4	0.0	0.0
8. NW7	173.	1.2	0.0	0.2	0.0	0.0	0.0	0.0	0.6	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: GOLDENWESTST AND BOLSA AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
2. SE3	0.0	0.0	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.3
3. SW3	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
4. NW3	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1
5. NE7	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
6. SE7	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2
7. SW7	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
8. NW7	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: I-405SB RAMPS AND ELLIS AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)

A. NF	*	8	-1500	8	-500	* AG	193	1.3	0.0	33.0
B. NA	*	8	-500	8	0	* AG	163	2.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	1230	2.6	0.0	33.0
D. NE	*	8	500	8	1500	* AG	1230	1.3	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	429	1.3	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	139	2.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	35	2.2	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	35	1.3	0.0	33.0
I. WF	*	1500	8	500	8	* AG	2406	1.3	0.0	33.0
J. WA	*	500	8	0	8	* AG	2383	2.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	1400	1.6	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	1400	1.3	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	554	1.3	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	554	2.2	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	917	1.6	0.0	33.0
P. EE	*	500	-8	1500	-8	* AG	917	1.3	0.0	33.0
Q. NL	*	0	0	8	-500	* AG	30	2.6	0.0	33.0
R. SL	*	0	0	-8	500	* AG	290	2.6	0.0	33.0
S. WL	*	0	0	500	8	* AG	23	1.8	0.0	33.0
T. EL	*	0	0	-500	-8	* AG	0	1.8	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: I-405SB RAMPS AND ELLIS AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. NE3	*	25	25	6.0
2. SE3	*	25	-25	6.0
3. SW3	*	-25	-25	6.0
4. NW3	*	-25	25	6.0
5. NE7	*	38	38	6.0
6. SE7	*	38	-38	6.0
7. SW7	*	-38	-38	6.0
8. NW7	*	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H

1. NE3	95.	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SE3	356.	1.3	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0
3. SW3	84.	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. NW3	94.	1.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
5. NE7	97.	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. SE7	353.	0.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
7. SW7	82.	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	97.	1.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: I-405SB RAMPS AND ELLIS AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

	CONC/LINK (PPM)											
RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.1	1.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
2. SE3	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
3. SW3	0.1	0.5	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
4. NW3	0.1	1.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
5. NE7	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6. SE7	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
7. SW7	0.0	0.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
8. NW7	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: I-405NBOFFRAMP AND GARDENGROVE

RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	1389	1.3	0.0	33.0
B. NA	*	8	-500	8	0	* AG	1230	2.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	1440	2.6	0.0	33.0
D. NE	*	8	500	8	1500	* AG	1440	1.3	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	1585	1.3	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	1365	2.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	1457	2.6	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	1457	1.3	0.0	33.0
I. WF	*	1500	8	500	8	* AG	1931	1.3	0.0	33.0
J. WA	*	500	8	0	8	* AG	1741	2.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	1948	2.2	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	1948	1.3	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	1694	1.3	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	1419	2.6	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	1754	2.2	0.0	33.0
P. EE	*	500	-8	1500	-8	* AG	1754	1.3	0.0	33.0
Q. NL	*	0	0	8	-500	* AG	159	2.2	0.0	33.0
R. SL	*	0	0	-8	500	* AG	220	2.2	0.0	33.0
S. WL	*	0	0	500	8	* AG	190	2.2	0.0	33.0
T. EL	*	0	0	-500	-8	* AG	275	2.2	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: I-405NBOFFRAMP AND GARDENGROVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* COORDINATES (FT)

RECEPTOR	X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	265.	1.9	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0
2. SE3	355.	1.8	0.0	0.1	0.7	0.0	0.1	0.3	0.0	0.0
3. SW3	85.	1.8	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0
4. NW3	95.	1.9	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
5. NE7	262.	1.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
6. SE7	352.	1.2	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0
7. SW7	82.	1.2	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
8. NW7	97.	1.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: I-405NBOFFRAMP AND GARDENGROVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.1	0.7	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1
2. SE3	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
3. SW3	0.1	0.4	0.0	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.1	0.0
4. NW3	0.0	0.8	0.1	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0
5. NE7	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
6. SE7	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
7. SW7	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0
8. NW7	0.0	0.5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: MAGNOLIA STREET AND WARNER AVENU
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S	Z0= 100. CM	ALT= 0.0 (M)
BRG= WORST CASE	VD= 0.0 CM/S	
CLAS= 7 (G)	VS= 0.0 CM/S	
MIXH= 1000. M	AMB= 0.0 PPM	
SIGTH= 5. DEGREES	TEMP= 15.6 DEGREE (C)	

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	1389	1.3	0.0	33.0
B. NA	*	8	-500	8	0	* AG	1230	2.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	1440	2.6	0.0	33.0
D. NE	*	8	500	8	1500	* AG	1440	1.3	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	1585	1.3	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	1365	2.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	1457	2.6	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	1457	1.3	0.0	33.0
I. WF	*	1500	8	500	8	* AG	1931	1.3	0.0	33.0
J. WA	*	500	8	0	8	* AG	1741	2.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	1948	2.2	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	1948	1.3	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	1694	1.3	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	1419	2.6	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	1754	2.2	0.0	33.0
P. EE	*	500	-8	1500	-8	* AG	1754	1.3	0.0	33.0
Q. NL	*	0	0	8	-500	* AG	159	2.2	0.0	33.0
R. SL	*	0	0	-8	500	* AG	220	2.2	0.0	33.0
S. WL	*	0	0	500	8	* AG	190	2.2	0.0	33.0

T. EL	*	0	0	-500	-8	*	AG	275	2.2	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: MAGNOLIA STREET AND WARNER AVENU
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	265.	1.9	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0
2. SE3	355.	1.8	0.0	0.1	0.7	0.0	0.1	0.3	0.0	0.0
3. SW3	85.	1.8	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0
4. NW3	95.	1.9	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
5. NE7	262.	1.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
6. SE7	352.	1.2	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0
7. SW7	82.	1.2	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
8. NW7	97.	1.2	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: MAGNOLIA STREET AND WARNER AVENU
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.1	0.7	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1
2. SE3	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
3. SW3	0.1	0.4	0.0	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.1	0.0
4. NW3	0.0	0.8	0.1	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.0
5. NE7	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
6. SE7	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
7. SW7	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0
8. NW7	0.0	0.5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SEALBEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	3075	1.3	0.0	33.0
B. NA	8	-500	8	0	AG	2881	2.6	0.0	33.0

C. ND	*	8	0	8	500	*	AG	3262	1.6	0.0	33.0
D. NE	*	8	500	8	1500	*	AG	3262	1.3	0.0	33.0
E. SF	*	-8	1500	-8	500	*	AG	3119	1.3	0.0	33.0
F. SA	*	-8	500	-8	0	*	AG	2924	2.6	0.0	33.0
G. SD	*	-8	0	-8	-500	*	AG	3100	1.6	0.0	33.0
H. SE	*	-8	-500	-8	-1500	*	AG	3100	1.3	0.0	33.0
I. WF	*	1500	8	500	8	*	AG	1090	1.3	0.0	33.0
J. WA	*	500	8	0	8	*	AG	716	2.6	0.0	33.0
K. WD	*	0	8	-500	8	*	AG	1042	2.6	0.0	33.0
L. WE	*	-500	8	-1500	8	*	AG	1042	1.3	0.0	33.0
M. EF	*	-1500	-8	-500	-8	*	AG	784	1.3	0.0	33.0
N. EA	*	-500	-8	0	-8	*	AG	438	2.6	0.0	33.0
O. ED	*	0	-8	500	-8	*	AG	664	2.6	0.0	33.0
P. EE	*	500	-8	1500	-8	*	AG	664	1.3	0.0	33.0
Q. NL	*	0	0	8	-500	*	AG	194	1.8	0.0	33.0
R. SL	*	0	0	-8	500	*	AG	195	1.8	0.0	33.0
S. WL	*	0	0	500	8	*	AG	374	2.6	0.0	33.0
T. EL	*	0	0	-500	-8	*	AG	346	2.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: SEALBEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. NE3	*	25	25	6.0
2. SE3	*	25	-25	6.0
3. SW3	*	-25	-25	6.0
4. NW3	*	-25	25	6.0
5. NE7	*	38	38	6.0
6. SE7	*	38	-38	6.0
7. SW7	*	-38	-38	6.0
8. NW7	*	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	* 185.	* 2.2	*	0.1	1.2	0.1	0.0	0.0	0.0	0.3	0.1
2. SE3	* 354.	* 2.1	*	0.0	0.2	0.8	0.0	0.1	0.6	0.0	0.0

3. SW3	* 5.	* 2.2	* 0.0	0.0	0.4	0.1	0.1	1.2	0.1	0.0
4. NW3	* 174.	* 2.0	* 0.1	0.6	0.0	0.0	0.0	0.2	0.8	0.0
5. NE7	* 187.	* 1.3	* 0.0	0.7	0.0	0.0	0.0	0.0	0.3	0.1
6. SE7	* 352.	* 1.3	* 0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0
7. SW7	* 7.	* 1.3	* 0.0	0.0	0.3	0.1	0.0	0.7	0.0	0.0
8. NW7	* 172.	* 1.2	* 0.0	0.5	0.0	0.0	0.0	0.0	0.4	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: SEALBEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

	CONC/LINK (PPM)											
RECEPTOR	I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0
2. SE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
3. SW3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1
4. NW3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1
5. NE7	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
6. SE7	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
7. SW7	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SEALBEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	2318	0.8	0.0	33.0
B. NA	*	8	-500	8	0	* AG	2308	1.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	2705	1.0	0.0	33.0
D. NE	*	8	500	8	1500	* AG	2705	0.8	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	2379	0.8	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	1744	1.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	2244	1.0	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	2244	0.8	0.0	33.0
I. WF	*	1500	8	500	8	* AG	1343	0.8	0.0	33.0
J. WA	*	500	8	0	8	* AG	752	1.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	161	1.0	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	161	0.8	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	240	0.8	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	79	1.6	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	1170	1.6	0.0	33.0
P. EE	*	500	-8	1500	-8	* AG	1170	0.8	0.0	33.0
Q. NL	*	0	0	8	-500	* AG	10	1.1	0.0	33.0
R. SL	*	0	0	-8	500	* AG	635	1.4	0.0	33.0
S. WL	*	0	0	500	8	* AG	591	1.6	0.0	33.0
T. EL	*	0	0	-500	-8	* AG	161	1.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: SEALBEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)

POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	185.	1.2	0.0	0.6	0.1	0.0	0.0	0.0	0.2	0.0
2. SE3	354.	1.2	0.0	0.1	0.4	0.0	0.0	0.3	0.0	0.0
3. SW3	85.	1.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0
4. NW3	95.	1.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0
5. NE7	187.	0.7	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.0
6. SE7	352.	0.8	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
7. SW7	83.	0.7	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0
8. NW7	97.	0.7	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: SEALBEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
2. SE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0
3. SW3	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0

4. NW3	*	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.0
5. NE7	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6. SE7	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
7. SW7	*	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0
8. NW7	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: SPRINGDALE AND WESTMINISTER
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	0.5 M/S	Z0=	100. CM	ALT=	0.0 (M)
BRG=	WORST CASE	VD=	0.0 CM/S		
CLAS=	7 (G)	VS=	0.0 CM/S		
MIXH=	1000. M	AMB=	0.0 PPM		
SIGTH=	5. DEGREES	TEMP=	15.6 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	1523	0.8	0.0	33.0
B. NA	*	8	-500	8	0	* AG	1347	1.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	1150	1.6	0.0	33.0
D. NE	*	8	500	8	1500	* AG	1150	0.8	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	1654	0.8	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	1062	1.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	1359	1.6	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	1359	0.8	0.0	33.0
I. WF	*	1500	8	500	8	* AG	1646	0.8	0.0	33.0
J. WA	*	500	8	0	8	* AG	1328	1.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	1225	1.6	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	1225	0.8	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	1543	0.8	0.0	33.0

N. EA	*	-500	-8	0	-8	*	AG	1343	1.6	0.0	33.0
O. ED	*	0	-8	500	-8	*	AG	2632	1.6	0.0	33.0
P. EE	*	500	-8	1500	-8	*	AG	2632	0.8	0.0	33.0
Q. NL	*	0	0	8	-500	*	AG	176	1.4	0.0	33.0
R. SL	*	0	0	-8	500	*	AG	592	1.6	0.0	33.0
S. WL	*	0	0	500	8	*	AG	318	1.4	0.0	33.0
T. EL	*	0	0	-500	-8	*	AG	200	1.4	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: SPRINGDALE AND WESTMINISTER
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. NE3	*	25	25	6.0
2. SE3	*	25	-25	6.0
3. SW3	*	-25	-25	6.0
4. NW3	*	-25	25	6.0
5. NE7	*	38	38	6.0
6. SE7	*	38	-38	6.0
7. SW7	*	-38	-38	6.0
8. NW7	*	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	*	185.	*	1.1	*	0.0	0.4	0.0	0.0	0.0	0.0	0.2	0.0
2. SE3	*	354.	*	1.2	*	0.0	0.1	0.3	0.0	0.0	0.2	0.0	0.0
3. SW3	*	85.	*	1.3	*	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
4. NW3	*	96.	*	1.2	*	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
5. NE7	*	187.	*	0.8	*	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0
6. SE7	*	352.	*	0.8	*	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
7. SW7	*	82.	*	0.9	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
8. NW7	*	98.	*	0.8	*	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

JUNE 1989 VERSION
PAGE 3

JOB: SPRINGDALE AND WESTMINISTER
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

	*	CONC/LINK (PPM)											
RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	*	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
2. SE3	*	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
3. SW3	*	0.0	0.2	0.0	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.1	0.0
4. NW3	*	0.0	0.4	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.1	0.0
5. NE7	*	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
6. SE7	*	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
7. SW7	*	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
8. NW7	*	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0

FF

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	3071	0.8	0.0	33.0
B. NA	8	-500	8	0	AG	3071	1.6	0.0	33.0
C. ND	8	0	8	500	AG	3532	1.0	0.0	33.0
D. NE	8	500	8	1500	AG	3532	0.8	0.0	33.0
E. SF	-8	1500	-8	500	AG	3849	0.8	0.0	33.0
F. SA	-8	500	-8	0	AG	3849	1.6	0.0	33.0
G. SD	-8	0	-8	-500	AG	4089	1.0	0.0	33.0
H. SE	-8	-500	-8	-1500	AG	4089	0.8	0.0	33.0
I. WF	1500	8	500	8	AG	0	0.8	0.0	33.0
J. WA	500	8	0	8	AG	0	1.6	0.0	33.0
K. WD	0	8	-500	8	AG	989	1.6	0.0	33.0
L. WE	-500	8	-1500	8	AG	989	0.8	0.0	33.0
M. EF	-1500	-8	-500	-8	AG	1690	0.8	0.0	33.0
N. EA	-500	-8	0	-8	AG	1229	1.6	0.0	33.0
O. ED	0	-8	500	-8	AG	0	1.1	0.0	33.0
P. EE	500	-8	1500	-8	AG	0	0.8	0.0	33.0
Q. NL	0	0	8	-500	AG	0	1.1	0.0	33.0
R. SL	0	0	-8	500	AG	0	1.1	0.0	33.0
S. WL	0	0	500	8	AG	0	1.6	0.0	33.0
T. EL	0	0	-500	-8	AG	461	1.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	185.	1.3	0.0	0.8	0.1	0.0	0.0	0.0	0.3	0.1
2. SE3	354.	1.2	0.0	0.1	0.5	0.0	0.1	0.5	0.0	0.0
3. SW3	5.	1.7	0.0	0.0	0.2	0.1	0.0	1.0	0.1	0.0
4. NW3	174.	1.5	0.0	0.4	0.0	0.0	0.0	0.2	0.6	0.0
5. NE7	262.	0.9	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
6. SE7	277.	0.9	0.0	0.3	0.0	0.0	0.0	0.0	0.2	0.0
7. SW7	7.	1.0	0.0	0.0	0.2	0.0	0.0	0.6	0.0	0.0
8. NW7	172.	0.9	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BEACH BLVD AND I-405SBRAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SE3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. SW3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
4. NW3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
5. NE7	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
6. SE7	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
7. SW7	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL

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                  JUNE 1989 VERSION
                  PAGE   1

               JOB: BEACH BOULEVARD AND MCFADDEN AVENUE
               RUN:                   (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide


  I.  SITE VARIABLES

         U=   0.5 M/S             Z0= 100. CM            ALT= 0.0 (M)
       BRG= WORST CASE            VD=  0.0 CM/S
      CLAS=     7 (G)             VS=  0.0 CM/S
      MIXH= 1000. M               AMB=  0.0 PPM
     SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)


 II.  LINK VARIABLES

      LINK      *  LINK COORDINATES (FT)  *              EF     H     W
   DESCRIPTION  *   X1    Y1    X2    Y2  * TYPE  VPH  (G/MI)  (FT)  (FT)
----------------*--------------------------*-------------------------------
A. NF           *     8 -1500     8  -500 *  AG   3437   0.8    0.0  33.0
B. NA           *     8  -500     8     0 *  AG   3211   1.6    0.0  33.0
C. ND           *     8     0     8   500 *  AG   3587   1.0    0.0  33.0
D. NE           *     8   500     8  1500 *  AG   3587   0.8    0.0  33.0
E. SF           *    -8  1500    -8   500 *  AG   3370   0.8    0.0  33.0
F. SA           *    -8   500    -8     0 *  AG   3167   1.6    0.0  33.0
G. SD           *    -8     0    -8  -500 *  AG   3370   1.0    0.0  33.0
H. SE           *    -8  -500    -8 -1500 *  AG   3370   0.8    0.0  33.0
I. WF           *  1500     8   500     8 *  AG   1148   0.8    0.0  33.0
J. WA           *   500     8     0     8 *  AG    746   1.6    0.0  33.0
K. WD           *     0     8  -500     8 *  AG   1109   1.6    0.0  33.0
L. WE           *  -500     8 -1500     8 *  AG   1109   0.8    0.0  33.0
M. EF           * -1500    -8  -500    -8 *  AG    838   0.8    0.0  33.0
N. EA           *  -500    -8     0    -8 *  AG    477   1.6    0.0  33.0
O. ED           *     0    -8   500    -8 *  AG    727   1.6    0.0  33.0
P. EE           *   500    -8  1500    -8 *  AG    727   0.8    0.0  33.0
Q. NL           *     0     0     8  -500 *  AG    226   1.1    0.0  33.0
R. SL           *     0     0    -8   500 *  AG    203   1.1    0.0  33.0
S. WL           *     0     0   500     8 *  AG    402   1.6    0.0  33.0
T. EL           *     0     0  -500    -8 *  AG    361   1.6    0.0  33.0
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FF

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          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   2

               JOB: BEACH BOULEVARD AND MCFADDEN AVENUE
               RUN:                   (WORST CASE ANGLE)
         POLLUTANT: Carbon Monoxide
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III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	185.	1.5	0.0	0.8	0.1	0.0	0.0	0.0	0.2	0.1
2. SE3	354.	1.4	0.0	0.2	0.5	0.0	0.0	0.4	0.0	0.0
3. SW3	5.	1.5	0.0	0.0	0.2	0.1	0.0	0.8	0.1	0.0
4. NW3	174.	1.4	0.0	0.4	0.0	0.0	0.0	0.1	0.5	0.0
5. NE7	187.	0.9	0.0	0.5	0.0	0.0	0.0	0.0	0.2	0.0
6. SE7	352.	0.8	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0
7. SW7	7.	0.9	0.0	0.0	0.2	0.0	0.0	0.5	0.0	0.0
8. NW7	172.	0.8	0.0	0.3	0.0	0.0	0.0	0.0	0.3	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BEACH BOULEVARD AND MCFADDEN AVENUE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
2. SE3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
3. SW3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
4. NW3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. NE7	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

6. SE7	*	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
7. SW7	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

FF

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: BRISTOL STREET AND I-405 NB OFF RAMP
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	2437	0.8	0.0	33.0
B. NA	*	8	-500	8	0	* AG	2437	1.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	3456	1.1	0.0	33.0
D. NE	*	8	500	8	1500	* AG	3456	0.8	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	2820	0.8	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	2820	1.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	3976	1.1	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	3976	0.8	0.0	33.0
I. WF	*	1500	8	500	8	* AG	1841	0.8	0.0	33.0
J. WA	*	500	8	0	8	* AG	1300	1.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	375	1.1	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	375	0.8	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	709	0.8	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	709	1.6	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	0	1.0	0.0	33.0

P. EE	*	500	-8	1500	-8	*	AG	0	0.8	0.0	33.0
Q. NL	*	0	0	8	-500	*	AG	0	1.1	0.0	33.0
R. SL	*	0	0	-8	500	*	AG	0	1.1	0.0	33.0
S. WL	*	0	0	500	8	*	AG	541	1.6	0.0	33.0
T. EL	*	0	0	-500	-8	*	AG	0	1.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: BRISTOL STREET AND I-405 NB OFF RAMP
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. NE3	*	25	25	6.0
2. SE3	*	25	-25	6.0
3. SW3	*	-25	-25	6.0
4. NW3	*	-25	25	6.0
5. NE7	*	38	38	6.0
6. SE7	*	38	-38	6.0
7. SW7	*	-38	-38	6.0
8. NW7	*	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	*	BRG (DEG)	*	PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	*	185.	*	1.4	*	0.0	0.6	0.1	0.0	0.0	0.0	0.3	0.1
2. SE3	*	354.	*	1.3	*	0.0	0.1	0.6	0.0	0.0	0.4	0.0	0.0
3. SW3	*	5.	*	1.3	*	0.0	0.0	0.3	0.1	0.0	0.7	0.1	0.0
4. NW3	*	175.	*	1.3	*	0.1	0.3	0.0	0.0	0.0	0.1	0.7	0.0
5. NE7	*	187.	*	0.8	*	0.0	0.4	0.0	0.0	0.0	0.0	0.2	0.0
6. SE7	*	352.	*	0.8	*	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0
7. SW7	*	7.	*	0.8	*	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.0
8. NW7	*	172.	*	0.8	*	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: BRISTOL STREET AND I-405 NB OFF RAMP
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	* CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	* 0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
2. SE3	* 0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
3. SW3	* 0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
4. NW3	* 0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
5. NE7	* 0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. SE7	* 0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. SW7	* 0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	* 0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0

FF

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: EUCLID STREET AND I-405 NB RAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK * LINK COORDINATES (FT) * EF H W

DESCRIPTION	X1	Y1	X2	Y2	TYPE	VPH	(G/MI)	(FT)	(FT)
A. NF	8	-1500	8	-500	AG	1052	0.8	0.0	33.0
B. NA	8	-500	8	0	AG	867	1.6	0.0	33.0
C. ND	8	0	8	500	AG	1647	1.6	0.0	33.0
D. NE	8	500	8	1500	AG	1647	0.8	0.0	33.0
E. SF	-8	1500	-8	500	AG	1420	0.8	0.0	33.0
F. SA	-8	500	-8	0	AG	1420	1.6	0.0	33.0
G. SD	-8	0	-8	-500	AG	2724	1.6	0.0	33.0
H. SE	-8	-500	-8	-1500	AG	2724	0.8	0.0	33.0
I. WF	1500	8	500	8	AG	743	0.8	0.0	33.0
J. WA	500	8	0	8	AG	294	1.4	0.0	33.0
K. WD	0	8	-500	8	AG	714	1.0	0.0	33.0
L. WE	-500	8	-1500	8	AG	714	0.8	0.0	33.0
M. EF	-1500	-8	-500	-8	AG	2395	0.8	0.0	33.0
N. EA	-500	-8	0	-8	AG	1369	1.6	0.0	33.0
O. ED	0	-8	500	-8	AG	525	1.0	0.0	33.0
P. EE	500	-8	1500	-8	AG	525	0.8	0.0	33.0
Q. NL	0	0	8	-500	AG	185	1.4	0.0	33.0
R. SL	0	0	-8	500	AG	0	1.4	0.0	33.0
S. WL	0	0	500	8	AG	449	1.4	0.0	33.0
T. EL	0	0	-500	-8	AG	1026	1.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: EUCLID STREET AND I-405 NB RAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

BRG	PRED CONC	CONC/LINK (PPM)

RECEPTOR	(DEG)	(PPM)	A	B	C	D	E	F	G	H
1. NE3	264.	0.9	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
2. SE3	275.	1.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
3. SW3	6.	1.1	0.0	0.0	0.2	0.0	0.0	0.4	0.1	0.0
4. NW3	175.	1.3	0.0	0.1	0.0	0.0	0.0	0.1	0.7	0.0
5. NE7	261.	0.7	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
6. SE7	277.	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
7. SW7	7.	0.7	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
8. NW7	172.	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: EUCLID STREET AND I-405 NB RAMPS
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
2. SE3	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2
3. SW3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
4. NW3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
5. NE7	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
6. SE7	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
7. SW7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
8. NW7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: GOLDENWESTST AND BOLSA AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	2011	0.8	0.0	33.0
B. NA	*	8	-500	8	0	* AG	1773	1.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	2285	1.6	0.0	33.0
D. NE	*	8	500	8	1500	* AG	2285	0.8	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	1473	0.8	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	1335	1.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	1926	1.6	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	1926	0.8	0.0	33.0
I. WF	*	1500	8	500	8	* AG	2025	0.8	0.0	33.0
J. WA	*	500	8	0	8	* AG	1480	1.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	1175	1.6	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	1175	0.8	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	1867	0.8	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	1606	1.6	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	1990	1.6	0.0	33.0
P. EE	*	500	-8	1500	-8	* AG	1990	0.8	0.0	33.0
Q. NL	*	0	0	8	-500	* AG	238	1.4	0.0	33.0
R. SL	*	0	0	-8	500	* AG	138	1.4	0.0	33.0
S. WL	*	0	0	500	8	* AG	545	1.4	0.0	33.0
T. EL	*	0	0	-500	-8	* AG	261	1.4	0.0	33.0

EF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: GOLDENWESTST AND BOLSA AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	186.	1.3	0.0	0.5	0.1	0.0	0.0	0.0	0.3	0.0
2. SE3	355.	1.4	0.0	0.1	0.6	0.0	0.0	0.2	0.0	0.0
3. SW3	85.	1.4	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
4. NW3	95.	1.3	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
5. NE7	188.	0.9	0.0	0.3	0.0	0.0	0.0	0.0	0.2	0.0
6. SE7	352.	0.9	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0
7. SW7	82.	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
8. NW7	98.	0.9	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: GOLDENWESTST AND BOLSA AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0
2. SE3	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
3. SW3	0.0	0.2	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.1	0.0
4. NW3	0.0	0.4	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0
5. NE7	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6. SE7	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
7. SW7	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0
8. NW7	0.0	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: I-405SB RAMPS AND ELLIS AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (FT) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	8	-1500	8	-500	AG	211	0.8	0.0	33.0
B. NA	8	-500	8	0	AG	179	1.6	0.0	33.0
C. ND	8	0	8	500	AG	1433	1.6	0.0	33.0
D. NE	8	500	8	1500	AG	1433	0.8	0.0	33.0
E. SF	-8	1500	-8	500	AG	504	0.8	0.0	33.0
F. SA	-8	500	-8	0	AG	166	1.6	0.0	33.0
G. SD	-8	0	-8	-500	AG	46	1.1	0.0	33.0
H. SE	-8	-500	-8	-1500	AG	46	0.8	0.0	33.0
I. WF	1500	8	500	8	AG	2724	0.8	0.0	33.0
J. WA	500	8	0	8	AG	2692	1.6	0.0	33.0
K. WD	0	8	-500	8	AG	1548	1.0	0.0	33.0
L. WE	-500	8	-1500	8	AG	1548	0.8	0.0	33.0
M. EF	-1500	-8	-500	-8	AG	640	0.8	0.0	33.0
N. EA	-500	-8	0	-8	AG	640	1.4	0.0	33.0
O. ED	0	-8	500	-8	AG	1052	1.0	0.0	33.0
P. EE	500	-8	1500	-8	AG	1052	0.8	0.0	33.0
Q. NL	0	0	8	-500	AG	32	1.6	0.0	33.0
R. SL	0	0	-8	500	AG	338	1.6	0.0	33.0

S. WL	*	0	0	500	8	*	AG	32	1.1	0.0	33.0
T. EL	*	0	0	-500	-8	*	AG	0	1.1	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: I-405SB RAMPS AND ELLIS AVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (FT) X	Y	Z
1. NE3	25	25	6.0
2. SE3	25	-25	6.0
3. SW3	-25	-25	6.0
4. NW3	-25	25	6.0
5. NE7	38	38	6.0
6. SE7	38	-38	6.0
7. SW7	-38	-38	6.0
8. NW7	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	95.	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2. SE3	355.	0.9	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
3. SW3	84.	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4. NW3	95.	1.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5. NE7	97.	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6. SE7	353.	0.6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
7. SW7	82.	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8. NW7	97.	0.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: I-405SB RAMPS AND ELLIS AVE
RUN: (WORST CASE ANGLE)

POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	*	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	*	0.0	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
2. SE3	*	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
3. SW3	*	0.0	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
4. NW3	*	0.0	0.7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
5. NE7	*	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6. SE7	*	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
7. SW7	*	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
8. NW7	*	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: I-405NBOFFRAMP AND GARDENGROVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= 0.5 M/S Z0= 100. CM ALT= 0.0 (M)
BRG= WORST CASE VD= 0.0 CM/S
CLAS= 7 (G) VS= 0.0 CM/S
MIXH= 1000. M AMB= 0.0 PPM
SIGTH= 5. DEGREES TEMP= 15.6 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	1297	0.8	0.0	33.0

B. NA	*	8	-500	8	0	*	AG	300	1.4	0.0	33.0
C. ND	*	8	0	8	500	*	AG	1391	1.6	0.0	33.0
D. NE	*	8	500	8	1500	*	AG	1391	0.8	0.0	33.0
E. SF	*	-8	1500	-8	500	*	AG	503	0.8	0.0	33.0
F. SA	*	-8	500	-8	0	*	AG	369	1.6	0.0	33.0
G. SD	*	-8	0	-8	-500	*	AG	0	1.0	0.0	33.0
H. SE	*	-8	-500	-8	-1500	*	AG	0	0.8	0.0	33.0
I. WF	*	1500	8	500	8	*	AG	458	0.8	0.0	33.0
J. WA	*	500	8	0	8	*	AG	458	1.4	0.0	33.0
K. WD	*	0	8	-500	8	*	AG	1734	1.6	0.0	33.0
L. WE	*	-500	8	-1500	8	*	AG	1734	0.8	0.0	33.0
M. EF	*	-1500	-8	-500	-8	*	AG	1564	0.8	0.0	33.0
N. EA	*	-500	-8	0	-8	*	AG	493	1.4	0.0	33.0
O. ED	*	0	-8	500	-8	*	AG	697	1.0	0.0	33.0
P. EE	*	500	-8	1500	-8	*	AG	697	0.8	0.0	33.0
Q. NL	*	0	0	8	-500	*	AG	997	1.6	0.0	33.0
R. SL	*	0	0	-8	500	*	AG	134	1.4	0.0	33.0
S. WL	*	0	0	500	8	*	AG	0	1.4	0.0	33.0
T. EL	*	0	0	-500	-8	*	AG	1071	1.6	0.0	33.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: I-405NBOFFRAMP AND GARDENGROVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z
1. NE3	*	25	25	6.0
2. SE3	*	25	-25	6.0
3. SW3	*	-25	-25	6.0
4. NW3	*	-25	25	6.0
5. NE7	*	38	38	6.0
6. SE7	*	38	-38	6.0
7. SW7	*	-38	-38	6.0
8. NW7	*	-38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	* BRG (DEG)	* PRED CONC (PPM)	*	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	* 265.	* 1.1	*	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0

2. SE3	*	276.	*	0.8	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. SW3	*	5.	*	0.7	*	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
4. NW3	*	264.	*	0.9	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5. NE7	*	262.	*	0.7	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
6. SE7	*	277.	*	0.6	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7. SW7	*	7.	*	0.5	*	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
8. NW7	*	262.	*	0.5	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: I-405NBOFFRAMP AND GARDENGROVE
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

		CONC/LINK (PPM)											
RECEPTOR	*	I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	*	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
2. SE3	*	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2
3. SW3	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4. NW3	*	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
5. NE7	*	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
6. SE7	*	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2
7. SW7	*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
8. NW7	*	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1

FF

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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: MAGNOLIA STREET AND WARNER AVENU
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

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        U=   0.5 M/S            Z0= 100. CM           ALT= 0.0 (M)
      BRG= WORST CASE           VD=  0.0 CM/S
     CLAS=     7 (G)            VS=  0.0 CM/S
     MIXH= 1000. M              AMB=  0.0 PPM
    SIGTH=    5. DEGREES       TEMP= 15.6 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (FT) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (FT)	W (FT)
A. NF	*	8	-1500	8	-500	* AG	1554	0.8	0.0	33.0
B. NA	*	8	-500	8	0	* AG	1388	1.6	0.0	33.0
C. ND	*	8	0	8	500	* AG	1686	1.6	0.0	33.0
D. NE	*	8	500	8	1500	* AG	1686	0.8	0.0	33.0
E. SF	*	-8	1500	-8	500	* AG	1777	0.8	0.0	33.0
F. SA	*	-8	500	-8	0	* AG	1492	1.6	0.0	33.0
G. SD	*	-8	0	-8	-500	* AG	1563	1.6	0.0	33.0
H. SE	*	-8	-500	-8	-1500	* AG	1563	0.8	0.0	33.0
I. WF	*	1500	8	500	8	* AG	2153	0.8	0.0	33.0
J. WA	*	500	8	0	8	* AG	1950	1.6	0.0	33.0
K. WD	*	0	8	-500	8	* AG	2167	1.6	0.0	33.0
L. WE	*	-500	8	-1500	8	* AG	2167	0.8	0.0	33.0
M. EF	*	-1500	-8	-500	-8	* AG	1766	0.8	0.0	33.0
N. EA	*	-500	-8	0	-8	* AG	1424	1.6	0.0	33.0
O. ED	*	0	-8	500	-8	* AG	1834	1.6	0.0	33.0
P. EE	*	500	-8	1500	-8	* AG	1834	0.8	0.0	33.0
Q. NL	*	0	0	8	-500	* AG	166	1.4	0.0	33.0
R. SL	*	0	0	-8	500	* AG	285	1.4	0.0	33.0
S. WL	*	0	0	500	8	* AG	203	1.4	0.0	33.0
T. EL	*	0	0	-500	-8	* AG	342	1.4	0.0	33.0

FF

```
          CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                   JUNE 1989 VERSION
                   PAGE   2

              JOB: MAGNOLIA STREET AND WARNER AVENU
              RUN:                    (WORST CASE ANGLE)
       POLLUTANT: Carbon Monoxide
```

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (FT) X	Y	Z

1. NE3	* 25	25	6.0
2. SE3	* 25	-25	6.0
3. SW3	* -25	-25	6.0
4. NW3	* -25	25	6.0
5. NE7	* 38	38	6.0
6. SE7	* 38	-38	6.0
7. SW7	* -38	-38	6.0
8. NW7	* -38	38	6.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. NE3	265.	1.3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
2. SE3	355.	1.3	0.0	0.1	0.5	0.0	0.0	0.2	0.0	0.0
3. SW3	85.	1.2	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0
4. NW3	95.	1.3	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0
5. NE7	262.	0.9	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
6. SE7	352.	0.8	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0
7. SW7	82.	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0
8. NW7	98.	0.8	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0

FF

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: MAGNOLIA STREET AND WARNER AVENU
RUN: (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. NE3	0.0	0.1	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
2. SE3	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0
3. SW3	0.0	0.2	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.0	0.0
4. NW3	0.0	0.5	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
5. NE7	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
6. SE7	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
7. SW7	0.0	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
8. NW7	0.0	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0

FF

Appendix G. Air Quality Conformity Findings Checklist

Transportation Air Quality Conformity Findings Checklist

Project Name:	Interstate-405 Improvement Project
Dist-Co-Rte-PM:	12-ORA-405 PM 9.3/24.2 / 07-LA-405 PM 0.0/1.2 12-ORA-22 PM R0.7/R3.8 / 12-ORA-22 PM R0.5/R0.7 12-ORA-73 PM R27.2/R27.8 / 12-ORA-605 PM 3.5/R1.6 07-LA-605 PM R0.0/R1.2 **EA:** 0H1000
Federal-Aid No.:	**ORA030605**
Document Type:	☐ **23 USC 326 CE** ☐ **23 USC 327 CE** ☐ **EA** ☒ **EIS**

Step 1. Is the project located in a nonattainment or maintenance area for ozone, nitrogen dioxide, carbon monoxide (CO), PM2.5, or PM10 per EPA's Green Book listing of non-attainment areas?

☐ If no, go to Step 17. **Transportation conformity does not apply to the project.**

☒ If yes, go to Step 2.

Step 2. Is the project exempt from conformity per 40 CFR 93.126 or 40 CFR 93.128

☐ If yes, go to Step 17. **The project is exempt from all project-level conformity requirements (40 CFR 93.126 or 128)** (check one box below and identify the project type, if applicable).

- ☐ 40 CFR 93.126 Project type: _____
- ☐ 40 CFR 93.128

☒ If no, **go** to Step 3.

Step 3. Is the project exempt from regional conformity per 40 CFR 93.127

☐ If yes, go to Step 8. **The project is exempt from regional conformity requirements (40 CFR 93.127)** (identify the project type). Project type: _____

☒ If no, go to Step 4.

Step 4. Is the project located in a region with a currently conforming RTP and TIP?

☒ If yes, t**he project is included in a currently conforming RTP and TIP per 40 CFR 93.115. The project's design and scope have not changed significantly from what was assumed in RTP conformity analysis (40 CFR 93.115[b])** Go to Step 8.

☐ If no and the project is located in an isolated rural area, go to Step 5.

☐ If no and the project is not located in an isolated rural area, STOP and do not proceed until a conforming RTP and TIP are adopted.

Step 5. For isolated rural areas, is the project regionally significant per 40 CFR 93.101, based on review by Interagency Consultation?

☐ If yes, go to Step 6.

☐ If no, go to Step 8. **The project, located in an isolated rural area, is not regionally significant and does not require a regional emissions analysis (40 CFR 93.101 and 93.109[l]).**

Step 6. Is the project included in another regional conformity analysis that meets the isolated rural area analysis requirements per 40 CFR 93.109, including Interagency Consultation and public involvement?

☐ If yes, go to Step 8. **The project, located in an isolated rural area, has met its regional analysis requirements through inclusion in a previously-approved regional conformity analysis that meets current requirements (40 CFR 93.109[l]).**

☐ If no, go to Step 7.

Step 7. The project, located in an isolated rural area, requires a separate regional emissions analysis.

☐ **Regional emissions analysis for regionally significant project, located in an isolated rural area, is complete. Regional conformity analysis was conducted that includes the project and reasonably foreseeable regionally significant projects for at least 20 years. Interagency Consultation and public participation were conducted. Based on the analysis, the interim or emission budget conformity tests applicable to the area are met (40 CFR 93.109[l] and 95.105).**[1] Go to Step 8.

Step 8. Is the project located in a CO nonattainment or maintenance area?

☐ If no, go to Step 9. **CO conformity analysis is not required.**

☒ If yes, **hot-spot analysis requirements for CO per the** CO Protocol (or per EPA's modeling guidance, CAL3QHCR can be used with EMFAC emission factors[2]) **have been met. Project will not cause or contribute to a new localized CO violation (40 CFR 93.116 and 93.123)**[3]**.** Go to Step 9.

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[1] The analysis must support this conclusion before going to the next step.

[2] Use of the CO Protocol is strongly recommended due to its use of screening methods to minimize the need for modeling. When modeling is needed, the Protocol simplifies the modeling approach. Use of CAL3QHCR must follow U.S. EPA's latest CO hot spot guidance, using EMFAC instead of MOVES; see: http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#co-hotspot.

Step 9. Is the project located in a PM10 and/or a PM2.5 nonattainment or maintenance area?

☐ If no, go to Step 13. **PM2.5/PM10 conformity analysis is not required.**

☒ If yes, go to Step 10.

Step 10. Is the project considered to be a Project of Air Quality Concern (POAQC), as described in EPA's Transportation Conformity Guidance for PM 10 and PM 2.5?

☐ If no, **the project is not a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Analysis Guidance. Interagency Consultation concurred with this determination on** _____. Go to Step 12.

☒ If yes, go to Step 11.

Step 11. The project is a POAQC.

☐ **The project is a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123, and EPA's Hot-Spot Guidance. Interagency Consultation concurred with this determination on *01/25/2011*. Detailed PM hot-spot analysis, consistent with 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Guidance, shows that the project would not cause or contribute to, or worsen, any new localized violation of PM10 and/or PM2.5 standards.** Go to Step 12.

Step 12. Does the approved PM SIP include any PM10 and/or PM2.5 control measures that apply to the project, and has a written commitment been made as part of the air quality analysis to implement the identified SIP control measures?

☐ If yes, **a written commitment is made to implement the identified SIP control measures for PM10 and/or PM2.5 through construction or operation of this project (40 CFR 93.117).**

☒ If no, go to Step 13.

Step 13a. Have project-level mitigation or control measures for CO, PM10, and/or PM2.5, included as part of the project's design concept and scope, been identified as a condition of the RTP or TIP conformity determination? AND/OR

Step 13b. Are project-level mitigation or control measures for CO, PM10, and/or PM2.5 included in the project's NEPA document?

AND

Step 13c (applies only if Step 13a and/or 13b are answered "yes"). Has a written commitment been made as part of the air quality analysis to implement the identified measures?

☐ If yes to 13a and/or 13b and 13c, **a written commitment is made to implement the identified mitigation or control measures for CO, PM10, and/or PM2.5 through construction or operation of this project. These mitigation or control measures are identified in the project's NEPA document and/or as conditions of the RTP or TIP conformity determination.[1] (40 CFR 93.125(a))**

☒ If no, go to Step 14

Step 14. Does the project qualify for a 771.117(c)(22) or 771.117(c)(23) Categorical Exclusion pursuant to 23 USC 326 and is an Air Quality Conformity Analysis required to document any analysis required by Steps 1 through 13 of this form?

☐ If yes, then Caltrans prepares the Air Quality Conformity Analysis and makes the conformity determination. No FHWA involvement is required. See the AQCA Annotated Outline. Go to Step 17.

☒ If no, go to Step 15.

Step 15. Does the project quality for any other Categorical Exclusion pursuant to 23 USC 326 (but NOT 771.117(c)(22) or 771.117(c)(23))?

☐ If yes, then no FHWA involvement is required and Caltrans makes the conformity determination through its signature on the CE form. **An Air Quality Conformity Analysis (AQCA) is not needed.** Go to Step 17.

☒ If no, go to Step 16.

Step 16. Does the project require preparation of a Categorical Exclusion, EA, or EIS pursuant to 23 USC 327?

☒ If yes, then Caltrans submits a conformity determination to FHWA for FHWA's conformity determination. **An AQCA is needed.** See the AQCA Annotated Outline.

Date of FHWA air quality conformity determination: _____

Go to Step 17.

Step 17. STOP as all air quality conformity requirements have been met.

Signature: _____

Printed Name: Reza Aurasteh, Ph.D., PE **Date:** _____

Title: Branch Chief of Environmental Engineering

[3] As of October 1, 2007, there are no CO nonattainment areas in California. Therefore, the requirements to not worsen existing violations and to reduce/eliminate existing violations do not apply.